The Art of Wing Shooting.

LEFFINGWELL.

R H Bam yard
June 19. 1900.

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THE ART OF

WING SHOOTING

A PRACTICAL TREATISE ON THE USE OF

THE SHOT-GUN

ILLUSTRATING, BY SKETCHES
AND EASY READING,

HOW TO BECOME AN EXPERT SHOT.

A COMPLETE EXPOSÉ OF THE SCIENTIFIC USE OF THE SHOT-GUN;
ALSO TREATING OF THE HABITS AND RESORTS OF GAME
BIRDS AND WATER FOWL, AND HOW TO BE-
COME A PROFICIENT INANIMATE
TARGET SHOT

BY

WILLIAM BRUCE LEFFINGWELL,
AUTHOR OF
"WILD FOWL SHOOTING," "SHOOTING ON UPLAND, MARSH, AND STREAM,"
ETC., ETC.

CHICAGO AND NEW YORK:
RAND, MCNALLY & COMPANY, PUBLISHERS.

THE MISSION OF THIS BOOK IS TO IMPART KNOWLEDGE IN A SIMPLE MANNER AS TO HOW ONE MAY BECOME PROFICIENT IN THE USE OF THE SHOTGUN.

FULL PAGE ILLUSTRATIONS.

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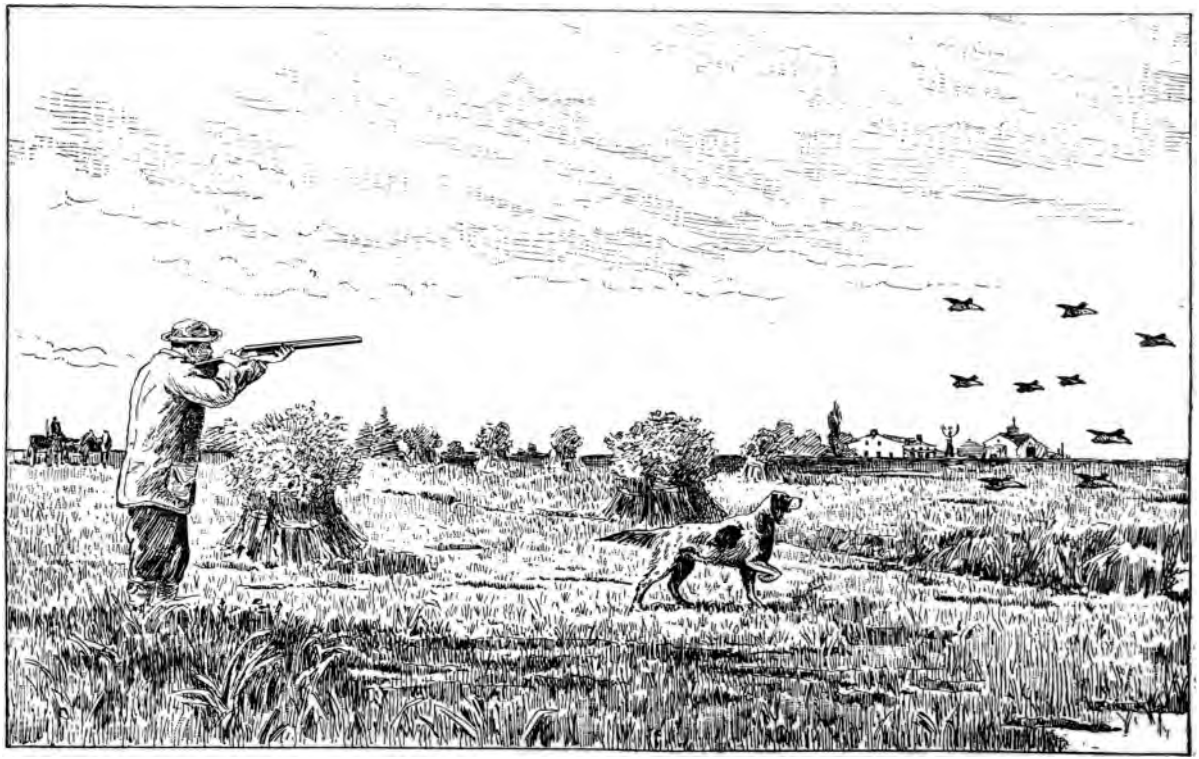
want us to participate in those delights, knowing the enticements of field and stream must be seen and felt. A boy who lives in a locality where game is to be found, feels he lives but half a life if he is denied the joys to be found with dog and gun. And if that boy's father is a sportsman, the twig from the parent stem is bent, unconsciously perhaps, but it is shaped and grown to maturity, nursed by fascinating tales of successful hunting trips, until the boy's very soul hungers for the feasts with dog and gun, as told in his presence by his father and his father's companions. Boys are impressionable; their sharp eyes and quick ears see and catch trifles which are passed unnoticed by the matured mind; they are quick to learn, and the object lessons, which are at times accidentally given them, are indellibly impressed on their minds. You talk of hunting, with the satisfaction it affords you, in the presence of your son, who has just reached an age when he softens your heart by his childish lispings, and yet, if left alone, he will stagger under the weight of your lightest gun, and vainly try to stretch his

stubby arms that he may reach the trigger of "papa's gun." It is a delightful retrospection, the earliest remembered days of boyhood, and to me the veil of years is brushed aside and I am at that sacred spot, on the wooded farm, where the birds sang their melodies to me from the branches of the hickory and oak; where a mother's lullaby wafted me into the sweet land of dreams, and where, at night, I pressed her dear hand, feeling she would protect me from that night-rambler which flitted through the dark woods ever and anon uttering its weird "too-hoo," "too-hoo." My love for field sports is the result of inheritance, strengthened and enlarged by having been raised where game was abundant, and I can well remember my youthful success in bagging game when I had not strength sufficient to level the gun, but sought the aid of stumps, fences, logs, or trees to steady my aim. My father was a noted hunter, a lawyer by profession, he sought the sylvan retreats of nature to find, not the fountain of youth which Ponce de Leon sought, but to renew his health which a sedentary life had impaired. As all boys find the acme of perfection in what their fathers do, so I listened with rapture to his tales of wood-life, and worshiped in child-

ish idolatry one who laid at my feet deer, turkeys, and wild game, promising me, that in coming years, he would teach me the secrets of the prairies, the woods, and the streams. I can look back now and see that those kindergarten lessons were seared in my heart, and I learned to love the woods and nature, and to study the habits and resorts of feathered game. I did not know at the time that I was doing it, but in after years, when the occasion required it, I found that those early teachings were well remembered. Of course, in those days we used muzzle-loading guns, and my first gun, with its hickory ramrod with a bright brass head, was the most appreciated gun I ever owned. The knowledge I obtained of guns was the result of study and experience. Things have changed, for now, with perfected arms, modern literature, sportsman's journals, and ammunition so exceedingly cheap, the boy or the man who desires to become a good, if not an expert, shot, has that accomplishment within his reach. A shooter, who has a natural adaptability for the sport, will advance much faster than one who learns in a mechanical way. It is so in everything where skill is to be required. Practice alone will enable one to reach a near state of perfection. In every calling men and women score remarkable successes; they do this without apparent effort; that gift is the foundation which enables them to build themselves to a height surpassing others of their profession. No man has ever attained a state of perfection in shooting, nor never will, and the high records reached by many shooters, which have placed them at the head of their profession, are the results of study, experience, and practice. The difficulty with most amateurs is, they think to become experts in a few



PRAIRIE CHICKEN SHOOTING.

hunts or in a single season at the trap. Do you know of any other art which can be acquired in so short a space of time? For shooting is an art. We attend a lecture; the lecturer astonishes us with the fund of information he possesses. We marvel at the instruction some mechanical expert is able to give us. We admire the technique of some celebrated musician. Are their accomplishments a gift? And did they acquire them without an effort? No, indeed. The first is the result of study, the second of experiments, and the third of practice. Those three things are essential for the amateur to do in order to become a good shot — study, experiment, and practice — and he will never become a good shot unless he enters into those things with his whole heart and profits by the instruction he receives.

CHAPTER II.

PROJECTILES.

WHEN we think of, or study the origin of, the use of projectiles, we trace them back to a time when David met Goliath on the field of Shochoh and conquered him, not by reason of his strength, but because he had discovered that an object could be hurled and death caused in battle by other means than by sword and spear. Simple though the means, yet the skillful shepherd, with stone and sling, he who had practiced day after day, had learned in that practice that he had within his reach a power of seemingly impossible force, with which he conquered a giant and put to flight the Philistines. As we examine into the history of projectiles, we find that arrows held sway for a long time, and we wonder when they first came into use. It was long before Robin Hood and his merry men held sway in the forests of England. It was long before Gessler commanded William Tell to shoot the apple from the head of the son of Tell, or to be put to death;

for prior to those times, and even before the Goths in their savage state ruled the world, arrows are known to have existed, for their heads of stone, of flint, and of steel had been used, and were later brought to light, when they were found to be covered with rust, and formations, and mineral petrefactions. I have spent pleasant hours admiring and studying the quaint arms of the ancients, and noted the variety displayed in the inlaid pearl and rare metals of cross-bows which required fully five minutes to load one of them. Those cross-bows had cranks about the size of those used in hand-organs, the strings of raw-hide, and the wheels had slots which must have made as much noise in winding up as the windlass and iron cogs which are used on ferry docks. And yet the bowmen must have been skillful in their use, acquiring a degree of skill which to us of this generation seems improbable if not impossible. Our childhood days bring recollections akin to fairy tales. History vouches for their truth, or what we love better than history, the charm of Sir Walter Scott's writings, have impressed our minds with tales of skill so delightfully told that we will not permit their truth to be assailed or even tarnished by the breath of suspicion of their veracity. And then Cooper has carried us into the field of fiction, where Leatherstocking and the Huron see and do deeds of skill with bow and arrows which have mesmerized our

young minds to trembling sleep, to dream that we existed amid the scenes of the earlier century. And then, later, as if our slumbering thoughts must never find rest, Charles Dudley Warner writes of "The Man Who Didn't Know Much," and our hearts went to, and we loved that simple man, "who didn't know much," but who always said and did the right thing at the right time and place. An illustration of the art of skillfully propelling or throwing of projectiles is first seen in the small boy. He loves to show his skill either in the presence of others, or, if alone, there is great satisfaction to him in being able to knock out a window-light in some neighbor's barn. With what degree of intense study he goes at it! He doesn't estimate the distance the object is from him in yards and feet. Were you to speak to him of the laws of gravitation, he would probably look at you in wonderment and say he never heard of such a law, and yet, as he braces himself for the throw and steps forward a couple of steps, the stone is hurled from him, it describes a circle and then it begins to fall in a descending curve, according to the distance thrown, and you see it near the object thrown at; you

hear a zit, or the tingling glass falling, and the boy compliments himself on his skill, or looks anxiously around to see if anyone saw him. Again, imagine a winter's day when the ground is covered with snow, the sun beats warmly down and the snow packs perfectly. Just the day for snow-balling. A farmer is coming to town, his weary team with downcast looks are jogging along. A small boy looks innocent enough, his gaze apparently far away until the farmer is to one side. Then the boy is a bundle of nerves; he gives his snow-ball an extra squeeze, the ball shoots out as if it would go far over the team and away ahead of the horses. Not so; the ball begins to descend, the horses are plodding along, and the ball is bursted into a hundred fragments as it strikes the farmer's head. You might smile at the confusion of the farmer. You might consider it an accident that the snow-ball hit him, but were you to ask the small boy how it was that he threw where he did, he would reply, "I throwed high, 'cause I knowed the ball would drop. I throwed ahead, 'cause the horses were movin' on a trot, and I guessed that by the time the ball got to the farmer that he would be where the ball struck." And there is the secret of successful wing shooting — the being able to judge time, distance, and velocity. These boys had discovered this in their stone-throwing and in their snow-balling. The principle is the same in the ballistic force of shot-guns, and no one will ever make an expert shot unless he learns to be a good judge of the pace in which a bird is flying, the space it will fly in a given length of time, and the time the pellets of shot will take in reaching the object intended to be hit, and unless he is conversant with the laws of gravitation. How can one

THE BOY'S FIRST EXPERIENCE.

learn these essentials to success? By study, observation, and practice. He must study distance; he must observe the effect of his shooting, and he must practice to remedy the defects. But you will say, how can I tell why I miss? The best way is to have some experienced shooter stand behind you and near you when you shoot, and he will tell you just where you shot. How can he tell this? He will tell it as the result of his experience, besides, by the way you point or swing your gun. After the beginner has become a good shot, there will be no difficulty in telling where the body of the shot went, he feels it, that is, it seems to him that he can see just where it went. This is so truly the case that at the report of the gun the old gunner can tell whether he has centered the bird, even if the bird shows no indication of having been hit, or whether he has shot before it, behind it, or under it.

The beginner will advance much more rapidly if he will study into the reasons of his success or non-success. Shooting is like everything else; it must be learned. As an art, it must be practiced, and practice will make one nearly perfect. There is no short road to acquire the art of wing shooting, but there is an easy road, and that road may be found in the manner set forth in this book.

Overloading must be avoided at all times, for an overload breeds timidity, and, fearing recoil, one will flinch, and then he cannot do good shooting. The beginner should first familiarize himself with his gun. He should learn to handle it with ease and quickness and to learn to instantly cover the object aimed at. This he should practice doing a short time for weeks, doing so in his room and striving to aim at one, then at double objects, and to cover them both. He should have empty

shells in his gun — they will stand repeated snappings — and when he swings his gun to right or left, he should not pull the trigger with a jerk, but keep the gun moving even a trifle beyond the object intended to be hit. After practice of this kind, the beginner learns to have confidence in himself, and when he goes afield, or perhaps to participate in his club shoots, he will see the benefits of this preliminary practice. I cannot impress on the mind too forcibly the folly of overloading. It will rattle the young shooter, sure as fate. On the contrary, if he will start out with light loads, each shoot or hunt will show to him greater pleasures. Disappointments will follow, too, and many of them, for just about the time he begins to feel that shooting is easy, he will have an off day, when the harder he tries the poorer he will shoot, and he will feel tempted to throw his gun away. It is very discouraging, but perseverance will make of him a good if not an expert shot.

PINNATED GROUSE.

CHAPTER III.

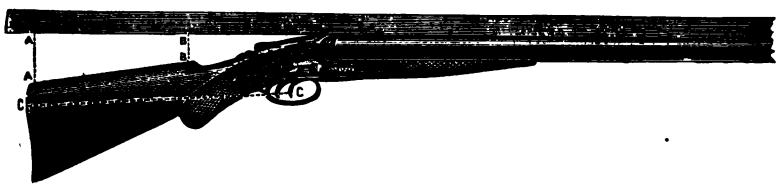
THE SELECTION OF A GUN.

THERE is no one thing which bothers the amateur more than the selection of a gun. He does not want to make a mistake in the one he chooses, and he is in despair at times, for one friend recommends one make, another a different gun, and so on down the line, each one stating the gun he suggests as having all the good qualities of the others, with some additional virtues. There is no best gun, and the purchaser can depend on the guns of any respectable maker. There are difference in action, locks, bolts, extension ribs, etc., but I fail to recall any guns of established and respectable makers which will not be well worth the money asked for them. The amount of money to be paid depends entirely upon one's pocket-book, or, in other words, what you can afford to pay. Of the cheaper class of guns—guns costing from $33 to $40—the American guns are the best. Going above those prices, one can get guns to please him as high as he wishes to go in price. The most salable guns in America are American guns, listed at $80, and the buyer can rest assured that he will get in those guns all he will desire in balance, wear, and shooting qualities. If the purchaser can afford it, he will frequently invest a greater amount of money. He will accomplish, by this investment, the getting of a superior article in general finish, but not in shooting qualities.

The beginner is at times nonplussed as to the measurement he should send the gun-maker or give to the gun-dealer. There is no rule to give which can be laid down as suitable to all persons. Some people are tall, others short; some slim, with long arms and neck; therefore, a gun should be selected to fit the shooter. This can be done by ordering according to the measurement, as indicated in the illustration. To make a selection properly, one should, when possible, go to a gun store, and from the many guns there select one which seems to fit him. If he finds such a one, he should take the measurement as shown in the illustration and order accordingly. If there is no gun store handy, he can try some friend's gun and get his measurements from that. The gun one buys should be selected, having in view the game it is intended to be used for. The standard gauge is twelve, and the proportion of guns sold in America are running 90 per cent of twelve-gauges, and 10 per cent of ten-gauges. There are a few eight-gauges made, and a few sixteen and twenty, but the demand is constantly increasing in favor of the twelve. The shooter should, therefore, choose a gun with which he can kill any feathered game. If he purchases a twelve-gauge, and has it properly bored and loads it rationally, he can do this. The beginner should use,

In ordering a gun, one should send the gun-maker his requirements for the gun as per this

ORDER BLANK.



Date,.....*189*.....

Name, ...

Name of Post Office, ...

County, ...

State, ...

Shipping Directions,.....

.....

Hammer or Hammerless,.....

Quality and Price,.....

10, 12, or 16 Gauge,.....

Length of Barrels,.....

Length of Stock from C to C,.....

Drop of Stock from A to A,.....

Weight, ...

Target — Left Barrel,.....

Target — Right Barrel,.....

REMARKS:

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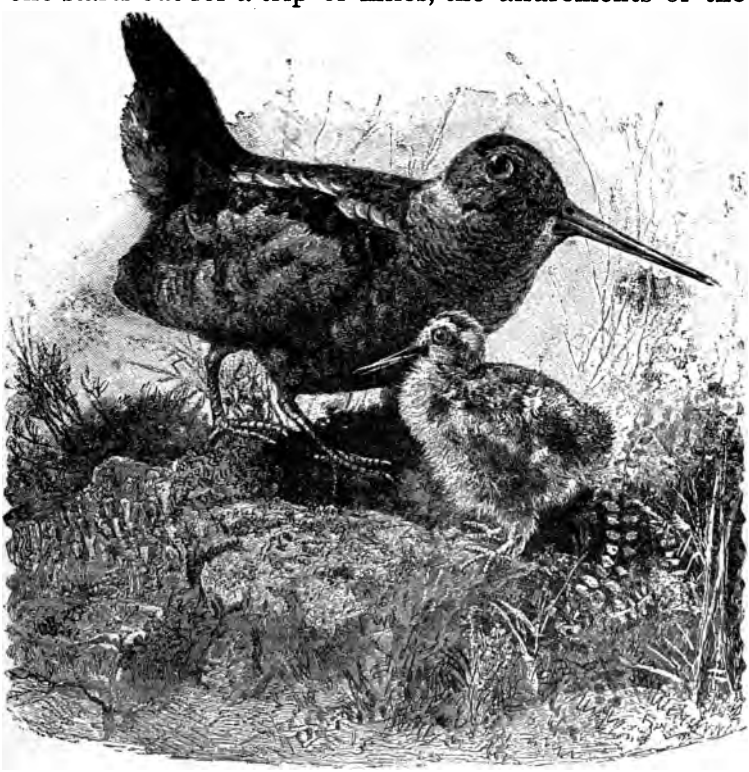
in ordinary shooting, a gun bored, the right barrel a cylinder, and the left a modified choke. This would be the proper gun for brush shooting and for small game. The great spread of the shot when fired from the cylinder increases the chances of hitting the object fired at, and aids one who has not yet become posted on the velocity with which the shot is thrown, and who has not learned to judge the distance from himself to the bird. A gun bored as described is suitable for quail and snipe shooting, and grouse early in the season. But a gun for field shooting should have the right barrel a modified, and the left a full choke. For trap shooting, many prefer both barrels full choked. The selection of a gun for one's own use depends largely on individual taste as to finish. There should be an exquisite hang or balance to the gun, which can only be found when the barrels are moderately thin at the muzzle, with the breech correspondingly heavy. The purchaser should refuse to accept a gun with a heavy muzzle and running, without a graceful taper, nearly straight back to the breech. Such a gun will prove to be muzzle heavy, and the shooter will contract the bad habit of shooting under. Besides, it will have the appearance of a poorly constructed gun, and will always be an eye-sore to the owner. The stock should be of walnut, and of a beautiful grain, the handsomer the better, for it is one of the most attractive points in a shot gun. The barrels should be of twist, laminated, damascus, or, better than any of the former, the silver or diamond steel, which is of a blue-black color, and which is fast coming into use. This steel is tougher than the others, and appears to be especially adapted for nitro powders.

THE FIRST AT THE BRIDGE

Until within the past few years, American sportsmen were given to ordering very crooked stocks, the drop at the butt running from 3 to 3½ inches. Such shaped stocks are a mistake, and we are now using stocks comparatively straight, ranging from 2¾ to 2½ inches, and among the prominent trap shots even straighter than those. Personally, I use a stock with 2½ inches drop, when in years gone by I used 3 and 3¼. I find the straighter stock enables me to shoot quicker and more effectively. The advantage of a straight stock is, that it throws the aim high, and as birds are always rising, especially at trap shooting, it is necessary that one shoots or holds a trifle over. If the reader has had experience in pigeon shooting he will notice the misses, almost without exception, are those when the shooter shoots under or behind the bird; again, the laws of gravitation are always to be considered and the shooter must bear in mind that at thirty-eight or forty yards the pellets of shot will drop from three to five inches, when the smaller sizes are used. An experienced shot knows where he wants to shoot, when he should shoot; but at times we are irresistibly moved to pull the trigger when we know we are wrong. We aim point blank at a driving bird when we know we should hold over it; there is no time for deliberation or hesitation, therefore the mechanical construction of the gun should aid us to accomplish a hit where otherwise we would score a miss, and it will, if constructed on scientific principles and according to the rules which experience has demonstrated as being correct. The reader will see by this the advantage of a straight stock to his gun. Many trap shooters are having straight grips to their guns, claiming they can catch quicker alignment. But I much prefer the pistol grip. The weight

of one's gun is a matter which should be given careful consideration. An excess of weight should be avoided, for it will bring to the user unnecessary fatigue. When one starts out for a trip of miles, the allurements of the



WOODCOCK AND YOUNG.

chase give buoyancy to one's feelings, sprightliness to one's steps, and extra weight of a pound in one's gun is but a trifle, but when night comes on, and he is fagged out with a weary tramp of many miles, the weight of the

gun should be consistent with our outing, and we should not be burdened with extra weight. A twelve-gauge gun, weighing from 7½ to 7¾ pounds is the proper arm. Greener says, "The gun for grouse driving will be bored to have a killing circle of thirty inches in diameter at the longest possible range; the gun not to be more than 7¼ pounds in weight, and it is not fashionable to use a larger bore than a twelve for this sport." If the shooter selects a ten-gauge it should weigh from 9¼ to 10½ pounds. There is no necessity of having a ten-gauge. It is a useless increase of weight; it adds to the cost of ammunition, and it is only a question of time when that bore will be in disuse except in cheap guns. When I wrote "Wild Fowl Shooting," seven or eight years ago, I advocated a ten-gauge. Since that time nitro powders have come into pretty general use, and I find I can do as good execution with a twelve-gauge, full choked, as I formerly did with a heavy ten-gauge. Let the reader attend a pigeon shoot or talk with those who understand fire-arms, and they will tell him the truth of what I write. The advantage of a ten-gauge over a twelve is, that a larger quantity of shot may be used with proper propelling power behind it. But it is the center of the charge which does the work, and when one feels that he should use more shot than 1⅛ ounces, which is the proper charge for a twelve-gauge, he admits his lack of skill, and strives to be benefited by scratch or accidental kills. The twelve-gauge is the happy medium between a ten and sixteen gauge, and one who has used them, and has the skill to bring out their proper qualities, will hold his own in any company.

The length of barrels is another consideration. It was formerly the belief that extreme lengths were desider-

DUCK SHOOTING IN THE TIMBER.

atums in guns and rifles, and the longer the barrel the greater the accuracy and penetrative power. In the ten-gauge, nothing is to be gained by using barrels longer than thirty inches, and in twelve-gauges the barrels may be shortened to twenty-six inches without reducing the pattern and consequent penetrating force. Thirty inches make an elegantly proportioned barrel and is recognized as the standard length. In long, high, or side shots, long barrels aid one in catching a more accurate aim. A quick aim can best be had with short barrels.

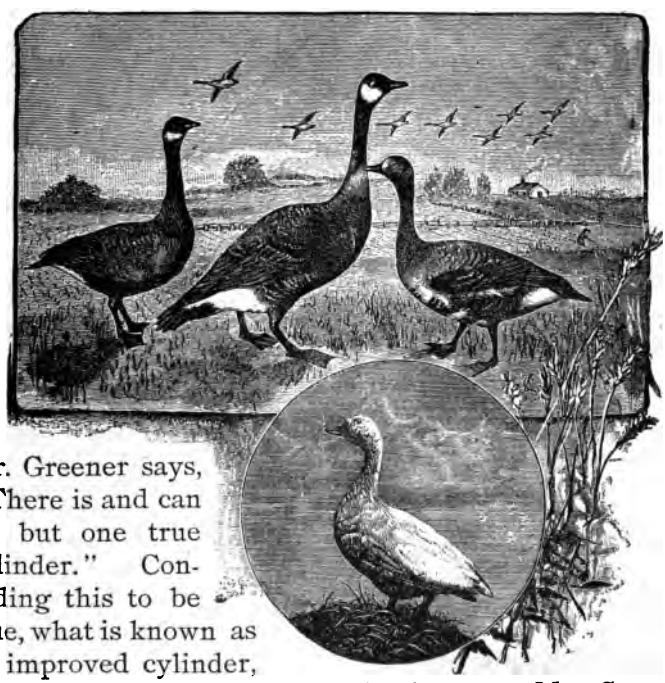
As the amateur will desire to be fully up to the times, he should in all cases select a hammerless gun. A hammer gun stands in the same relationship to a hammerless, as does a railroad coach to a palace car. Either will accomplish the result of making a journey pleasant. One brings pleasure in a mediocre manner, the other with elegance, for it supplies us with all that money and modern ingenuity can.

The inventive skill of the gun-maker is constantly exercised to bring about attractive additions to guns, which will enable the shooter to handle the gun more quickly. The fraction of a second often results in the loss of a shot, and the progressive gunner, who has the means to gratify his fancy, is always willing and does buy guns with the highest development of improvements and which give to him celerity of handling and loading. The ejector is the latest improvement in guns, and is fast coming into popular use. At the present time an ejector hammerless is a high-priced gun, but the prospects are, that medium-price ejectors will be placed on the market, then they will meet with additional and deserved favor.

CHAPTER IV.

CYLINDER, MODIFIED CHOKE, AND FULL CHOKE.

THERE are many terms by which the choke boring of guns are designated, but the three methods named in the heading of this chapter comprise the correct ones.



Mr. Greener says, "There is and can be but one true cylinder." Conceding this to be true, what is known as an improved cylinder, is in reality a choke in a slight degree. Mr. Greener

further says, that all shot-gun barrels are now more or less choke bored; that is to say, that the barrel is, at the muzzle, of a less internal diameter than at some point behind the muzzle other than the chamber. A gun constricted to the extent of five thousanths of an inch is termed a "modified choke"; a full choke is constricted to twenty or thirty thousandths. The larger the bore, proportionally greater must be the constriction. There are two distinct forms of choke: The true choke is obtained by boring the barrel cylinder for nearly the whole length, contracting it at from 2½ to 3 inches from the muzzle, extending the enlargement from two to four inches toward the breech. A modification of this plan is formed by enlarging the first choke toward the breech in a more elongated form. Still another modification is made by enlarging the barrels from the breech to within two or three inches of the muzzle.

The selection one should make of a gun, as to the shooting qualities, depends upon the use for which it is intended. All guns are tested for pattern at a thirty-inch circle at forty yards from the muzzle of the gun, and they should throw the following percentages of the charges in the circle, according to the bore. If a cylinder, 35 to 40 per cent; light choke, 40 to 52 per cent; medium choke, 50 to 60 per cent; full choke, 58 to 65 per cent, and an extra full choke, 60 to 67 per cent.

We frequently hear of guns which will throw 80 to 85 per cent of the charge in the given circle. Such guns are rarely made, and when one is found which will make such a target, thousands will be found, which, although especially bored for extreme close shooting will not make such targets.

AFTER QUAIL.

Nine out of ten shooters, when shooting at anything but wild fowl, are out-gunned. By that I mean that the gun shoots too closely for them, and their skill is not sufficient to hold the gun accurate enough to cover close flying birds. The amateur will often notice that he will miss birds close to him, especially an incomer, while at double the distance he will kill the bird. The greater the distance the harder the shot is to make. He kills the longer distance, because the shot has a chance to spread, and he misses the near shot, because the pellets go in a bunch perhaps not larger than one's hat. Such men as Brewer, Carver, Elliott, Fulford, and Budd can shoot full choked guns, because their skill is equal to the demands of the shot to be made. But those less skillful, who hunt occasionally, ought to take every advantage of the spread of shot, obtaining the greatest killing surface possible with an even spread of shot, giving a pattern sufficiently close to be effective. There is a time and place for all things. This is true with shot-guns. The time and place for a cylinder bore is in brush shooting; a modified choke in the first barrel in field shooting, and a full choke for wild fowl shooting. The proper gun for trap shooting may be found in the chapter on "Guns for Pigeon Shooting."

CHAPTER V.

GUNS FOR PIGEON SHOOTING.

THE amateur will find conflicting opinions among experts as to how guns should be bored for pigeon shooting, many foreign shooters using those which are bored cylinder in the first barrel and full choke in the second. The most essential thing in a pigeon gun is regularity of pattern and evenness of distribution; the covering of the largest possible space with a sufficient closeness of pattern to kill the bird fired at. There is a craze among American shooters for close-shooting guns, and a shooter is often handicapped because he can not hold the gun with the accuracy necessary to score a hit, whereas, if the gun shot more openly, his chances of hitting would be double and the killing force of the pellets would be as great. Those who have attended

pigeon-shoots have noticed how often a charge of shot will cut a swath on the ground just behind the flying bird and within a foot of it. Had there been a trifle more spread to the shot the bird would have been scored, with the aim the same. The professional pigeon-shot usually wants his gun bored both barrels full choke, but any man other than a professional will do better with the first barrel modified choke, considering at all times that an evenness of pattern is always necessary. Journo is one of the best shots in Europe. He at one time tried a full choke gun owned by Annie Oakley and scored not more than half of his birds. He was disgusted, and when she told him how closely the gun shot he was filled with contempt for such a gun for pigeon shooting, saying the first barrel should be bored a cylinder and the second a full choke. Charles Lancaster demonstrated to Annie Oakley the superiority of a modified choke over a full choke for the first barrel,

and now all her shot-guns are bored in that manner, and when we look at the wonderful scores she has made, we are satisfied that a full choke is not essential in the first barrel for pigeon shooting. If we can increase our killing circle and retain the penetration, that is the thing desired. I have in my library a book entitled "Practical Hints on Shooting," by "20-Bore." I regret that I can not give the author's name for it is one of the best works I ever saw on shooting. The author says, "For pigeon shooting, by all means have a twelve-bore with the right barrel cylinder and the left full choked, chambered to stand heavy charges (the orthodox charge at Hurlingham is 3½ drams of black powder, or its equivalent of E. C. or Shultze, and 1¼ ounces of shot) and weighing not less than 6¾ pounds. The minimum length of the barrels should be twenty-nine inches, but thirty inches will be found more effective."

Greener says of trap guns: "The amount of choke necessary will be regulated both by the nature of the sport

for which the gun is chiefly intended for and the skill of the shooter." A trap shooter placed at twenty-four yards must change his gun when the handicapper puts him back to twenty-eight. In deciding the amount of choke required, it must be borne in mind that the pattern made at any given distance does not fairly represent the position of the charge at any given moment. The pellets of a charge issue from the muzzle as compactly as a ball, then, having individual velocities, some go ahead, others lag behind, so that, roughly speaking, there is a distance of twelve feet between the first and the last pellet when the bulk of the pellets arrive at forty yards.

"For trap shooting, a gun is required to shoot as closely as possible at the trap. The bird must be shot at quickly, and the nearer to the trap it is grassed the better."

On reading the above one naturally suposes that Mr. Greener endorses an extreme full choke at the trap; but he modifies his previous statements when he says: "Naturally, the pigeon shooter requires as large a killing circle as is compatible with a close pattern. He requires the pattern to be equally spread over the killing circle to have the greatest velocity, and the pellets to keep together as much as possible; but of greater importance than all of these, it is required that the gun always performs alike. Uniformity in shooting is a quality only found in the best guns, and even cylinders, unless most carefully finished, will make occasional bad shots, one of which would allow of the pigeon escaping. Therefore, the gun must never shoot wildly, but be always good alike. It is the ability of the shooter to aim the gun which will determine the amount of the choke."

Under American Shooting Association rules the shooter, using a twelve-guage gun, stands twenty-eight yards from the center trap, and, as is often the case, one trap is used, he therefore stands much of the time twenty-eight yards from the spot from which the bird springs. A full-choke gun has a killing circle of about twenty-four inches at thirty-three yards, whereas a modified choke will have from thirty to thirty-six inches at the same distance. As the killing surface is enlarged, so, therefore, one's chances of hitting the bird are increased. A modified choke will make a pattern sufficiently close to kill a pigeon at from thirty-five to thirty-eight yards, and as it gives the shooter a manifest advantage in hitting the bird, by reason of the increased spread, it is correct to assume that for the first barrel a modified choke is better than a full choke, but that modification should make a pattern of about 55 per cent of the pellets in a thirty-inch circle at thirty-five yards.

The king of all pigeon shooters is John L. Brewer of Philadelphia. When shooters get ambitious, and feel they have got pigeon shooting down very fine, discretion is the greater part of valor with them, for, in their challenges, they usually except Brewer. He has been before the shooting world for many years, and during that time his castor has always been in the ring, and few have dared to notice it. He has traveled throughout the world, almost invariably winning his matches. In England few dared to shoot against him, and one of the most noticeable matches ever shot was when Brewer defeated Graham. Brewer shooting at forty-seven yards' rise and Graham at twenty-eight yards. Mr. Brewer said to the author: "The secret of pigeon shooting is to kill the birds

quickly, they must not be permitted to become hard birds; the quicker the first barrel is fired the better, and the second must follow before the bird is forty yards from the shooter. I can't say that I admire these long kills, because the fact that a man makes a long kill shows that he was slow in the use of the first or second barrel, and that won't do in pigeon shooting."

"What is your idea as to how a pigeon gun should be bored?" was asked:

"A pigeon gun," replied he, "should be a modified choke — both barrels. The first barrel being bored a little closer than a cylinder, and the second a little more open than a full choke. Bored in that manner, the first barrel will kill the bird within from thirty-five to thirty-seven yards, and the second up to forty yards, and the pigeon ought not be permitted to get beyond that distance when the second barrel is fired. A man must take every legitimate advantage in pigeon shooting. A modified choke gives that advantage, and when a man uses a a full choke he handicaps himself."

A gun for pigeon shooting should weigh from 7½ to anywhere under 8 pounds. It should be heavy at the breech, with a long and very straight stock, having a drop from 2 to 2½ inches at the butt. These straight stocks are desirable, because they cause one to shoot high, something which is essential, as there is a tendency to undershoot, and nearly every pigeon is missed by shooting under or behind. A pigeon gun should be bored to shoot a trifle high. Birds going from the trap are almost invariably rising, and as there is an almost uncontrollable tendency to aim at a straight-away bird, one should hold a trifle over.

CHAPTER VI.

THE CARE OF GUNS.

IT is necessary that the best of care be given fire-arms, lest they be unfit for use when desired. There is a rare charm in taking care of one's favorite gun, but it oftentimes happens that age makes the cleaning of our gun irksome, or induces us to seek rest rather than engage in the cleaning and rubbing of fire-arms. Beginners in wing-shooting find a great delight in polishing their guns, both inside the barrels and outside, also the stock. Many have argued that dirty or foul gun-barrels shoot better and stronger than clean ones. This is not so. When black powder was used so generally, in wild fowl and pigeon shooting, it was customary to dip the muzzle in water when one was shooting, or souse the muzzle in a pail of water which was kept conveniently near. The question has often been raised, if it is not injurious to use water in gun-barrels. No injury can arise from its use provided proper care is taken of the gun afterward. Water, as all know, will create rust if it is left on a surface of iron or steel. It should therefore be wiped off, not leaving a trace of it, for dampness will make rust almost as quickly as water. There is no necessity to use water except to clean out the muzzle, which may have become caked, on a hot day. After the muzzle has been dipped into the water the gun should be fired before the gun has become thoroughly covered with water which

might be left in spots or rivulets inside the barrels. When one is through shooting and is ready to put the gun away for the night, it should be wiped carefully out until all traces of foulness has disappeared. If lead adheres at the breech or muzzle, it can be removed with a wire brush, and if it sticks too much, a little benzine or kerosene will remove it effectually. After the gun has been cleaned it should be wiped out again, using a flannel rag which fits tightly in the barrel. A friction will be created by rubbing it back and forth through the barrel. This friction will make sufficient warmth to completely dry the barrel, when a rag thoroughly saturated with oil should be run through. The question often is: What is the best lubricant to use? The author has tried every known one, and he formerly believed vaseline to be the best, but now Burr's gunoleum has superseded all other lubricants and he finds it superior to vaseline, and a preparation which completely supplies the want of a lubricant and rust preventive.

The locks of one's guns should be intelligently looked after. What is meant by intelligently is, that they should be examined at times in order to detect any rust which may appear. One of the best bits of advice given a young sportsman about the care of the locks of his gun was, "Let them alone." There are more locks harmed than benefited by examinations. When locks are put together, fitted, and sent out as perfect, they are the scientific work of mechanics thoroughly versed in their calling, and no amateur has any business removing or tinkering with them. The author has known the mechanism of many locks to be spoiled by inexperienced persons trying to remedy some real or imaginary defect.

A SURPRISE.

If there is anything the matter with a gun it should be sent to some competent repairer and have it repaired the same as one would his watch or other delicate machinery. There are many sportsmen who think their guns should never be put away unless the hammers are let down (in hammerless guns). The author has never made a practice of letting down the hammers as stated, and, although he has owned dozens of guns, he never has found any weakening of the springs by reason of the hammers being kept up. Some gun-makers warrant their springs not to be effected by thus remaining sprung. Others advise the letting of the hammers down. A sportsman should heed the advice of his gun-maker as they surely know the requirements of the gun they make.

The snapping of guns should be always avoided. Where one gun is not injured by it, ten are, and there is nothing which so thoroughly disgusts a sportsman, as to have someone pick up his gun, shove the safety slide ahead and then snap both barrels. The man who habitually does this, comes pretty close to being in the same class with the man who "didn't know it was loaded."

The young sportsman can not be too cautious in handling the gun of some one who hands it to him for inspection. Compliments of the gun are expected and decidedly in order; but the snapping of the hammers and the violent slamming of the gun together, are little things of themselves, but they may bring about a decided coolness on the part of the owner of the gun. Be careful, therefore, how you handle your friend's gun, and you will be justified if you take the same resolution a sportsman did a century ago when he vowed, "I will never loan my wife, my dog, or my gun."

CHAPTER VII.

SPEED OF BIRDS.

THERE is nothing more deceptive than the speed or pace at which a bird is flying. The smaller the bird the greater its speed appears to be. The comparison is apt of birds in flight, as between the apparent speed of a pony and an 1,100-pound horse. The pony clatters and makes a great fuss, while the larger horse develops the same degree of speed without seeming effort, and so easily as to seem hardly possible. We sit in cars looking at the fence-posts, which seem to recede from us, so rapidly are we going. We ask the conductor at what rate we are traveling; he replies, "Forty miles an hour." It seems fast, and just about the time we are appreciating the service of the road and the rate at which we are traveling a lazy crow which has been loafing in an adjoining field takes a notion that it will travel the same direction that we are going. It rises in what seems to us a listless manner, and it keeps perhaps a hundred yards from the train; then its slow, flapping wings beat with the regularity of a pendulum, at the same time this crow keeps pace with the train and travels a forty-miles-an-hour gait, which, were it not along at the side of the train we

would say it was flying at a speed of about twenty-five miles an hour. If the shooter stood forty yards from the train and desired to hit a spot the size of the crow, which was outlined on the door of the baggage-car, he would hold seven or eight feet ahead and his aim would be correct. On the contrary, if the beginner in field shooting were to attempt to kill the crow at that same distance he would shoot a few inches or a few feet ahead of it, miss it, and wonder why. The reason is apparent; it makes no difference whether the object is animate or inanimate; the question to be considered is: How far was the object from the shooter? We have agreed that it is forty yards. It is going forty miles an hour, or almost sixty feet a second. It is crossing at right angles. Now, suppose your gun was loaded with 1⅛ ounces of No. 6 shot. That shot in a twelve-guage gun, propelled by three drams of powder, would travel about 840 feet a second; so, while the shot was being hurled on its errand, the crow would have flown eight feet and six inches, and the shooter, in order to have been successful, must have held eight feet six inches ahead of the bird, less the distance allowed for the latteral swing of the gun.

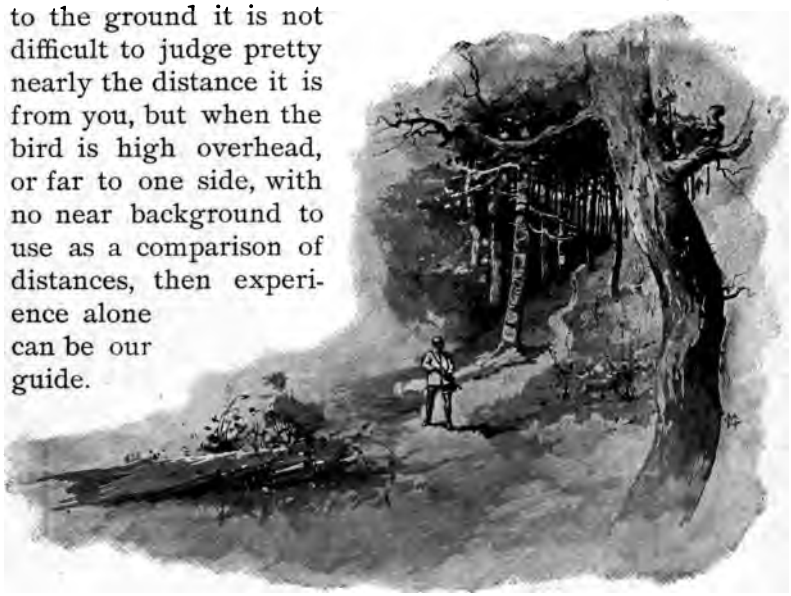
The following is the estimated flight per hour of the following birds in full plumage and when they attain their greatest speed:

Crow, from 25 to 40 miles.
Mallard, from 40 to 50 miles.
Black Duck, from 40 to 50 miles.
Shoveler, from 40 to 50 miles.
Pintail, from 50 to 60 miles.
Wood Duck, from 55 to 60 miles.
Widgeon, from 60 to 70 miles.
Gadwall, from 60 to 70 miles.
Red Head, from 80 to 90 miles.
B. W. Teal, from 80 to 100 miles.
G. W. Teal, from 80 to 100 miles.
Blue Bill, from 80 to 100 miles.
Canvas Back, from 80 to 120 miles.
Sparrow, from 40 to 92 miles.
Hawk, from 40 to 150 miles.
Geese (wild), from 80 to 90 miles.

CHAPTER VIII.

DISTANCE.

IT is absolutely necessary for one to be a good judge of distance if he hopes to become a good shot. And the opportunities for learning distance are so many, and so easily practicable, that one can study distance in the daily avocations of life. When a bird is flying close to the ground it is not difficult to judge pretty nearly the distance it is from you, but when the bird is high overhead, or far to one side, with no near background to use as a comparison of distances, then experience alone can be our guide.



Comparisons are the best of teachers; indeed, comparisons perfected by experiences make the judging of

distances not certain within a few inches, but probable within a few feet, and certain within a few yards.

When the beginner is afield he has hundreds of opportunities to test his skill in estimating how far it is from himself to some visible object. But the reader may say that a stationary object and a flying bird are different to judge. Admitting this to be true at the beginning, yet when one has learned to estimate distances to bits of paper, logs, trees, fences, etc., he has learned the lesson of judging correctly the distance a flying bird is from him. This judging of distance to some is easy, to others exceedingly difficult, but practice will make it attainable to all. The shooter should, and he will, if ambitious, note the comparative distance objects are from him. He will do this every day, whether he estimates the distance a pigeon is from him which may be feeding in the street, whether to a hitching post which is directly across the street from him, or to some object away from him, let it be the gilded ball on the pole which surmounts a high building, or any other object. Indeed, one's eye should always be alert studying such things. The experienced trap shot, who has been accustomed to shooting at thirty yards rise, will walk up to the score, and, if the measurement of distance to the trap has been too much, he will glance at the trap, and then will probably turn and say, "Who measured this? It's the longest thirty yards that I ever saw." He has learned to judge that distance by experience. The author has made a life study of this subject, and is gratified with the success it has aided him in attaining, for he can judge velocity, speed, weight, and distance to a degree that is surprising. You will learn to judge distance while targeting your

RUFFED GROUSE SHOOTING.

gun, for, if you shoot repeatedly at thirty-five and forty yards, you will learn to estimate those distances with pretty fair accuracy.

The larger the bird, the harder it is to tell how far it is from you. Your opportunity for seeing the bird has much to do with this. When a freedom of bodily movement is permitted, and unobstructed vision is to be had, an experienced hunter will tell pretty nearly how far the bird is from him. On the contrary, when one is lying on the flat of his back in a stubble field, or some deserted pasture, with a sprinkling of hay or a few corn-stalks over his body, and fifteen or twenty Canadas are coming toward the hunter, probably ten feet from the ground, occasionally uttering sonorous "Ah Unks," then, the bird at seventy-five yards looks to be forty away from the hunter, and unless he is experienced, he will rise to a sitting position too quickly, only to see his mistake when too late. We are never able to tell how high birds are over us, and we shoot and kill according to our experiences. We estimate the distance in comparison with what we have seen and done, when actual measurements have been taken on birds we killed when flying close to the ground.

The following are the distances traveled by game and birds at the rate of speed per hour named, in one-eighth second:

At 5 miles per hour, .92 feet.
At 10 miles per hour, 1.83 feet,
At 12 miles per hour, 2.2 feet.
At 20 miles per hour, 3.69 feet.
At 30 miles per hour, 5.5 feet.
At 40 miles per hour, 7.33 feet.
At 60 miles per hour, 11 feet.
At 80 miles per hour, 14.66 feet.
At 90 miles per hour, 16.05 feet.
At 100 miles per hour, 18.33 feet.
At 120 miles per hour, 22 feet.
At 150 miles per hour, 27.5.

CHAPTER IX.

VELOCITY OF SHOT.

THE superiority of choke-bore guns in far-killing powers, make velocity and pattern nearly synonymous terms. A good pattern is nearly always an indication that the charge has great penetrative force. A study of one's gun is therefore necessary, for guns are as peculiar in bringing out their good qualities as children are at times. Some guns behave in the most disgusting manner, shooting one size of shot well and throwing another in a wild manner. A properly bored gun, however, will not behave as poorly as that, but there are few guns that won't shoot one particular size better proportionally than any other. Velocity means striking or killing force, in the sense we use the term. There is a maximum of this force to be reached. When it is reached, the shooter has discovered the best qualities of his gun, and not until then. It should therefore be the aim of every shooter to discover the proper charges for his gun, and this can only be done by practical, or scientific experiments. It was, for a long time, the opinion of many of the best shots that the more powder one used the more effective his gun would prove to be. I thought that when a boy, and usually had a black and blue shoulder as the result of my faith. But velocity is not increased by overloading; on the contrary, an excessive charge of powder causes the gun to scatter the charge, and the natural

result is a patchy and irregular pattern. One must therefore cater to the peculiarities of his gun, he must be as patient as a mother is with a spoiled child, for you know the harder it is to bring a boy to an understanding, the better man he makes. Your gun, once understood, and loaded as it should be, will prove a most delightful companion. The author does not intend to enter into a scientific discussion of the propelling force of a shot-gun. Sportsmen generally, and amateurs especially, do not like to knit their brows and figure for hours over the whys and wherefores of a certain proposition, and I do not intend to put them in a position where they will have to study deeply. The result of study, practice, and experience is what they want to know, and that is what they will get in this book. Practical and scientific experiments have proven that the proper load for a twelve-gauge gun is 3 drams of nitro, or 3¼ drams of good black powder, and 1⅛ ounces of shot. Such loads as those will prove satisfactory at any feathered game, providing the loads are wadded rightly. Mr. Armin Tenner, who made such elaborate powder tests in 1893, says: "There is no occasion for going to such extremes in the way of a powder-charge and shot-load to kill a pigeon as some gunners do. To boil a potato, boiling water is required, but as soon as the water has reached the boiling point, no amount of extra fuel will facilitate the forces much farther. To kill a pigeon a certain amount of striking force is required. The penetrative force of pellets is governed by a maximum. Whenever this is reached, no extra charges will serve to increase it farther. As a rule, the gunner employing a twelve-gauge can not increase his killing chances much by enlarging his shot-

SNIPE SHOOTING.

load beyond 1⅛ ounces of No. 7 shot. I know that this assertion will not meet the views of many trap shots, but I want facts, indisputable facts. I shall here name them in regard to their relations of the striking force between a load consisting of 1⅛ ounces of shot and three drams of Shultze powder and 3½ drams of the same powder and 1¼ ounces of shot No. 7, both loads to be employed for a twelve-gauge gun. It is claimed for the heavy load that it will kill farther than the light one. Now let us see what the facts in the premises are. At fifty yards from the muzzle of the gun the standard or light load will show a velocity of 770 feet, and the velocity of the heavy load, at the same point, of 760 feet, or ten feet less than that of the former. The muzzle velocity of both loads is about the same, or only two feet higher with the heavier load. What has the gunner employing the heavier load gained? He has succeeded in increasing the recoil about 25 per cent, and the bursting strain in pressure in the gun-barrels about 35 per cent; that's all.

Mr. Tenner had made such a thoroughly scientific test of gun powder, at the time mentioned, that I reproduce extracts from his reports, giving to sportsmen such points as are applicable here, and which, by reason of the study and investigation I have made, coincide with my conclusions:

VELOCITIES AND THE METHOD OF ASCERTAINING THEM.

"The term velocity, applied in a general way, designates the rate of speed at which a projectile or the bulk of a shot-charge travels through the air up to a certain point.

"This velocity can be ascertained by various methods, but the instrument now generally employed is the chronograph Le Boulenge, originally invented by a Belgian military officer bearing that name. The application of this instrument is as follows: When a bullet or shot-charge leaves the muzzle of the gun, it is obliged to cut a fine silver or copper wire stretched across the muzzle. This wire conveys a current to an electro-magnet on the upper part of the instrument to which a cylindrical rod, covered with a zinc sheath, is perpendicularly suspended and held by the attraction of the electro-magnet. This rod, which is called the chronometer, drops immediately the wire before mentioned is broken and the current opened. The target is connected by wire with a second electro-magnet on the lower part of the chronograph, wherein a second current is created. To this second electro-magnet a shorter rod is similarly suspended, called the registrar, which drops as soon as the perpendicularly suspended and sliding target is moved from its contacts and the current thereby interrupted. The shot-charge having cut the wire stretched in front of the muzzle of the gun, and thus opened the first circuit, the chronometer is caused to drop. Before it has fallen below a certain point, the shot-charge has reached the target and forced this away from the contacts, causing thereby the second rod or the registrar to drop. The shorter rod falls on a disc, and doing so releases a spring, to which a knife is attached, and which now flies horizontally to the falling first rod, thereby nicking at a certain point the zinc cover of the latter. Now, the longer this chronometer falls — that is, the longer time the shot requires to reach the target — the higher up on the long rod this nick made

by the knife will be found; and, on the other hand, the quicker the shot gets to the second screen and causes the registrar to drop, the lower the knife-mark on the zinc will be. With the aid of a graduated rule, which graduation conforms strictly to the laws of gravity, the time occupied by the traveling shot in reaching the target can easily and quite accurately be determined.

"The velocities were taken at Chicago and Carney's Point with the chronograph at a distance of forty yards from the muzzle of the gun. The figures quoted should be understood thus: When a velocity of, say, 804 feet is mentioned, it means that if the pellets had continued to travel a full second at the rate of speed they traveled up to forty yards, they would then have reached a distance of 804 feet.

"Velocities taken up to a distance of forty yards are termed initial velocities, although, in a strict sense of the word, this term should only apply to the velocity at the muzzle. But it is almost impossible to take the velocities at this point, and therefore, they are, as far as hand-fire weapons are concerned, generally taken at distances from twenty-five to seventy-five yards; with the shot-gun at forty yards.

"Velocity represents life force, or penetrative power. From the velocity figures a pretty reliable conclusion can be drawn as to the killing power of a shot-charge, and no other means or methods employed for ascertaining the penetrative power constitute as trustworthy a guide as the figures obtained from the chronograph. For this reason the velocities will be taken herein as the basis for comparing and judging the penetration of the several powders.

A VARIETY OF GAME.

"All propelling agents develop in summer, and especially in warm and dry weather, a higher bursting strain than in winter in a low temperature or moist atmosphere; and fine shot, again, creates, owing to the larger surface of friction, a higher gas pressure than the coarse or larger pellets, and the bursting strain of 1⅛ ounces is less than with 1¼ ounces of the same size shot.

"As a rule, the pattern is always less satisfactory from the large load than from the service charge, and in some cases, where powders susceptible to dry weather are used, the chances of a balling of the shot are materially increased by the heavier load.

"The quantity of powder loaded in excess of the standard charge is therefore uselessly wasted, and the same rule applies generally, as will be subsequently shown, to an increase of the shot-charge beyond 1⅛ ounces.

"In order to achieve a thorough combustion of the nitro powers, the shells should be crimped at least ⅛ inch. The strong crimp also serves to prevent the shell loaded in the left barrel from opening from the effects of the shots fired from the right barrel, or vice versa. But, even if the shells are crimped well, it shows good judgment on the part of the gunner, if he, after firing several shots from one barrel, examines the cartridge loaded in the other barrel, or takes out the latter and loads it in the barrel for the next shot."

Larger sized shot will, with the same powder-charge, give a higher velocity than that of a smaller size. The difference between shot No. 1 and No. 3 at a distance of forty yards is about thirty feet; between the former and shot No. 5, sixty feet; between No. 1 and No. 7, ninety feet, and between No. 1 and No. 10, 175 feet.

CHAPTER X.

BINOCULAR SHOOTING.

WHAT in former years seemed to be a fad is now established as the most successful way of aiming. When Doctor Carver demonstrated that two eyes were better than one, some of the old-timers thought his shooting was accidental because he never took aim. He did take aim, however, not by squinting and trying to get an absolutely correct focus on the object fired at, but experience and — instinct, perhaps, is a good word — told him that the gun was pointed correctly. He knew and felt that his aim was right, and from long and successful shooting he had learned that when he pointed the gun in the direction of the flying object, there was an indefinable something which told him when his aim was correct and when to shoot.

A beginner should learn to shoot with both eyes open; the vision is double that of one eye; the sight can be caught more quickly, and, to prove the correctness of the style, I fail to recall a prominent shooter of to-day who shoots in any other manner. There is, of course, a feeling of uncertainty in the beginning. A bird springs up and the gun is pointed toward it, the whole vision is unobstructed. The shooter can not tell the accuracy of his aim as well as when shooting with one eye closed. He isn't supposed to think; he has no time to think. Like a flash of light his brain formulates velocity of flight of

both bird and projectiles, and the distance the bird is away from him. It is that feeling of doubt, dispelled by success, which makes binocular shooting a pleasure, and there is no question but that it is the best way to shoot. As we are accustomed to look up to professionals in any class for instruction as to the accomplishment of feats of skill which we admire, and which we have seen them do, so we look to them that, having done those things, they will tell us how 'tis done and instruct us that we may do it.

Binocular shooting has been done from the beginning of the world; the bowmen, the archers, the savages all have practiced it. The base-ballist, the billiardist, and even the small boy playing marbles accomplished the reaching of the object by the thing shot or thrown, not by squinting one eye but by quickly estimating the distance the object is from him, and then shooting or hurling the projectiles accordingly. Practice begets confidence in binocular shooting, and confidence is sure to bring success. The beginner, first having selected a gun which fits him, should stand in a graceful position, his head well up. He should not attempt too fine an aim, but bring the gun quickly and steadily to his shoulder, look well over the rib of his gun and when he feels his aim is about right, blaze away. He will soon be successful.

The question of shooting with one or both eyes open suggested these lines to Watt:

"Close neither eye, some good shots say;
Shut up your left: that's not the way;
But still a man may take his oath,
He'd better shut one eye than both."

CHAPTER XI.

WHERE TO AIM, AND WHY.

HAVING in former chapters given the speed of birds and the velocity at which shot is propelled, we will now, by a series of object lessons, apply the rules and show the amateur how he can be successful in the field. The shooter must bear in mind this, that distance and height apparently shortens the space which one holds ahead, and when one holds six feet ahead of a bird at forty-five or fifty yards, it does not appear more than two-thirds of those distances. It is better to be too far ahead than not far enough, for shot is not thrown in a compact mass, but assumes the form of a disc, and the stringing shot, which is a few feet, often yards, behind the main body of the load, results in the shooter killing the bird. But, if the shooter does not hold well ahead, he does not receive the advantage of this stringing shot, and scores a miss.

Many shooters claim they do not hold ahead, but swing with the bird at the time of firing, their gun being pointed at the head or a few inches ahead of the bird. It is impossible for anyone to kill birds at long side-shots, the bird going at right angles, unless they hold ahead, and those who claim to do so accomplish the killing by the lateral swing of the gun. That is, they move the gun much more rapidly than the bird is flying. It takes time, no matter how little, to decide to pull the trigger, for the hammer to descend, for the powder to ignite, for the shot

to pass out the barrel, and then for the shot to reach the object aimed at. All this time the bird is moving and allowance *must* be made for the bird and shot to come in contact, or else a miss is the result. This swinging of the gun to one side is so trifling that many shooters fail to recognize its importance. A bird at forty yards from the shooter, and flying forty miles an hour, will go a trifle over eight feet in a second. The charge of shot in that one second will be thrown 840 feet. The shot, therefore, will cross the line of flight of the bird and will kill the bird if the shooter is skillful enough to so direct his aim so the bird will fly into the charge of shot. As we have seen heretofore, the aim must be well ahead of the bird, and to throw the gun eight feet ahead of the bird, the lateral movement of the gun is just three inches at the muzzle. This side swing is so trifling, that when a shooter swings his gun rapidly, and feels he must shoot quickly, it is no wonder he said he held a few inches ahead, when, in reality, he held many feet. Again, there is a great difference in shooters, some being remarkably quick in pulling the trigger, others proverbially slow. The quicker one is in pulling the trigger, the less lateral swing he will make. Sir Ralph Payne Gallway, Bt., is one of the highest authorities in the world in the use of the shot-gun. I copy from one of his letters to the London *Field:*

"I will now say something on a subject which has always interested me very much, and that is, 'the lateral movement of a gun in the hands of a shooter, and the corresponding intervals at which the charge of shot will strike along a line parallel with the earth, as in the case of firing at an overhead bird or one crossing at right

BARNUM RETRIEVING A GOOSE.

angles.' The earliest experiments of the kind I undertook were carried out by placing a gun on a pivot close to the ground, with a foot rule under the barrels, and sighting the latter at a stick placed upright forty yards distant. I then moved the sight laterally half an inch at a time, placing fresh sticks at right angles to the line of fire, and level with the first one, to mark the aim in each position. This gave me the divergence of the charge of shot according to the lateral movement of the muzzle of the gun up to forty yards; and it was an easy matter to stretch strings from each mark to the first position of the sight of the gun, as when directed toward number one stick, so that the intermediate measurements between the strings were easily ascertained, according to the displacement of the barrels from their original line of fire.

TIMES, VELOCITIES, ETC., WITH THREE DRAMS AND ONE OUNCE OF NUMBER SIX.

Distance of bird.	Time taken by shot in transit. Second.	Mean velocity of shot. Feet per second.	Flight of bird, at forty miles per hour, during transit of shot.	Lateral movement by the shooter of the muzzle of his gun.
15 yards	.0411	1095	2 feet 5 inches.	2.4 inches.
20 "	.0568	1056	3 " 4 "	2.5 "
25 "	.0743	1009	4 " 4 "	2.6 "
30 "	.0932	966	5 " 6 "	2.7 "
35 "	.1146	916	6 " 9 "	2.9 "
40 "	.1377	872	8 " 1 "	3.0 "
45 "	.1625	831	9 " 6 "	3.2 "
50 "	.1900	786	11 " 2 "	3.4 "
55 "	.2231	740	13 " 1 "	3.6 "
60 "	.2614	689	15 " 4 "	3.8 "

N. B. No time allowance included for pull of trigger or passage of shot up the barrel.

"As I had doubts concerning the accuracy of my deductions I consulted the editor of the *Field*, and he has

most kindly worked out the annexed table for me from the records of experiments which have been published in the *Field*, and these figures practically agree with my own calculations.

"In these calculations the flight of the bird is stated to the nearest inch, and the movement of muzzle to the nearest tenth of an inch, in order to show the gradual variations; but for ordinary practical purposes it would suffice to consider the nearest foot in the one case, and the nearest inch in the other.

TIME, VELOCITIES, ETC., WITH THREE DRAMS AND ONE AND ONE-EIGHTH OUNCES OF NUMBER SIX.

Distance of bird.	Time taken by shot in transit. Second.	Mean velocity of shot. Feet per second.	Flight of bird, at forty miles per hour, during transit of shot.	Lateral movement by the shooter of the muzzle of his gun.
15 yards	.0431	1044	2 feet 6 inches.	2.5 inches.
20 "	.0596	1007	3 " 6 "	2.6 "
25 "	.0776	966	4 " 7 "	2.7 "
30 "	.0975	923	5 " 9 "	2.9 "
35 "	.1192	881	7 " 0 "	3.0 "
40 "	.1429	840	8 " 5 "	3.2 "
45 "	.1689	800	9 " 11 "	3.3 "
50 "	.1979	758	11 " 8 "	3.5 "
55 "	.2329	709	13 " 8 "	3.8 "
60 "	.2779	647	16 " 4 "	4.1 "

N. B. No time allowance included for pull of trigger or passage of shot up the barrel.

"Besides the relative velocities of shot and bird, as shown above, there are two other matters deserving consideration, though they are commonly overlooked. One is the time that elapses between the pulling of the trigger and the passage of the shot out of the muzzle of the gun, and the other is the amount of time taken by the shooter in the operation of pulling the trigger.

"For ordinary purposes it will be near enough to say that the time occupied, from the actual fall of the hammer to the shot quitting the muzzle, is the hundredth part of a second; and in the hundredth part of a second a bird flying at the rate of forty miles an hour would move just about seven inches. Again, a man who has quick nerve-action also takes about the hundredth of a second to pull the trigger after he has made the resolve to do so. This means another seven inches added to the distance the bird will have flown, or fourteen inches in all, after the aim and intention to fire had been decided upon by the shooter.

"Though a bird flying at forty miles an hour, whether its distance from the gun is long or short, always moves this fourteen inches during the pulling of the trigger and passage of the shot up the barrel, yet such a space requires no appreciable addition in the lateral motion of the muzzle by the shooter; for, if he shoots quickly at first sight, he need only allow a forward space to his bird in relation to the time taken, according to distance, by the shot in traveling from the muzzle of the gun to the game.

"I have alluded to the shooter who fires his gun without any hesitation, and pointed out the great advantage such a power gives him in regard to a forward aim. It is a very different affair, however, when a man hangs on his trigger; for his bird may fly several feet while he is converting thought into action.

"There is a great difference in the quickness of touch in different persons, and its consequent effect on the allowance to be made in firing at crossing birds is very considerable. For instance, one man might pull the

SHOOTING PINNATED GROUSE.

trigger in the hundredth part of a second, when other men would take longer times, varying from one to six hundredths of a second; consequently, though the bird might fly seven inches only in the case of the quick man, it might move three to four feet in the case of the slow shooter.

"A table of figures in relation to whether a shooter fires quickly or slowly is here given:

FLIGHT OF BIRD, AND LATERAL MOVEMENT OF MUZZLE, WHEN PULL OF TRIGGER IS QUICK AND WHEN SLOW.

(Charge, 3 drams and 1⅛ ounces of No. 6; birds flying forty miles an hour).

QUICKEST PULL OF TRIGGER.			SLOWEST PULL OF TRIGGER.		
Distance of bird.	Flight of bird during transit of shot.	Lateral movement of gun muzzle by the shooter.	Distance of bird.	Flight of bird during transit of shot.	Lateral movement of gun muzzle by the shooter.
15 yards	3 ft. 8 in.	3.7 inches.	15 yards	6 ft. 8 in.	6.6 inches.
20 "	4 ft. 8 in.	3.5 "	20 "	7 ft. 7 in.	5.7 "
25 "	5 ft. 8 in.	3.4 "	25 "	8 ft. 8 in.	5.2 "
30 "	6 ft. 11 in.	3.4 "	30 "	9 ft. 10 in.	4.9 "
35 "	8 ft. 2 in.	3.5 "	35 "	11 ft. 1 in.	4.8 "
40 "	9 ft. 7 in.	3.6 "	40 "	12 ft. 6 in.	4.7 "
45 "	11 ft. 1 in.	3.7 "	45 "	13 ft. 10 in.	4.7 "
50 "	12 ft. 9 in.	3.8 "	50 "	15 ft. 9 in.	4.7 "
55 "	14 ft. 10 in.	4.0 "	55 "	18 ft. 2 in.	4.9 "
60 "	17 ft. 6 in.	4.3 "	60 "	20 ft. 5 in.	5.1 "
Times included:			Times included:		
For pull of trigger		.01 Sec.	For pull of trigger		.06 Sec.
For passage of shot up the barrel		.01 "	For passage of shot up the barrel		.01 "
		.02 Sec.			.07 Sec.

"From this we may see how easy it is for a slow, pottering marksman to miss crossing birds unless he keeps the muzzle of his gun moving forward of his game till the shot is out of the barrel, as described in my previous

SHOOTING GROUSE IN THE TIMBER.

letter on aiming. If the shooter, however slow he may be, can do this, the space the bird flies while the trigger is being pulled is eliminated, and all that takes effect is the time expended by the charge between the gun and the game.

"A curious point in connection with the very slow shooter (as may be seen by reference to the second column of the above table of figures) is, that instead of increasing his allowance for distant birds, he should reduce it, and give about two inches more lateral movement to his gun at fifteen yards than he does at forty or fifty yards. This apparent anomaly results from the fact that the effect of the lateral movement of the gun muzzle gradually increases with the length of the radius —or, in other words, with the distance of the crossing bird that is fired at; whereas, the time taken in pulling the trigger is equal for all distances, and therefore its comparative influence diminishes with the increased distance of the bird, and the consequently longer time taken by the shot in reaching its destination.

"Even in regard to the quick shooter, a similar deduction applies, but only to a very slight extent, as the lateral movement of the gun muzzle in his case is practically about three and one-half inches for all distances from fifteen to fifty yards."

CHAPTER XII.

POSITION IN THE FIELD.

WHEN one is in the field he should always stand in the easiest position attainable. The condition of the ground will have much to do with this, and in duck shooting, especially, very trying positions will be forced on the shooter. I have at such times shot from sitting, lying, and kneeling positions which neither my dignity nor my agility would at any other time permit me to take. There is much in this getting into position for shooting. It must not be done in a manner that will attract approaching birds, and yet, one must be in shape to shoot at the proper time. Shooting geese from pits in a stubble field, or when striving to get a favorable position when lying on one's back, is the most trying.

It is not so difficult in upland shooting, for there one enjoys freedom of bodily action. When the dog is at a point stand cool and calm awaiting your shot, your left foot slightly advanced, your right acting as a brace, your left hand advanced to the tip of the fore-end, the gun stock *not* at your shoulder, but the butt about half-way between your elbow and armpit. Should the bird swing to left or right, swing on your right foot, using it as a pivot. Don't bring your gun to your shoulder until the bird is on the wing, then kill it quickly, or shoot moderately quick, according to the distance the bird rises from you.

A PRETTY DOUBLE.

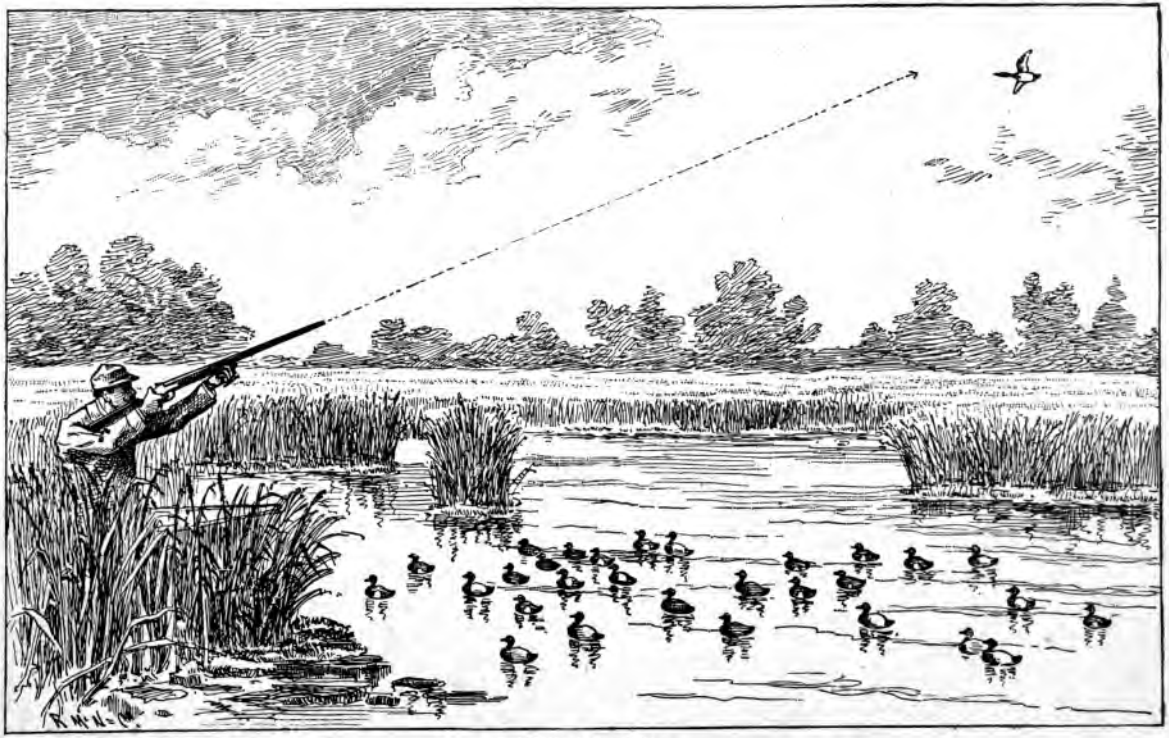
What delightful recollections the scene recalls! Were you ever in the marsh when the sun was setting, tinging the western sky with a rose-tinted glow, and ducks were coming to your decoys with great regularity? The scene portrays such a time. Far to the west the ducks are moving in their evening flight, and dropping into the marsh with reckless abandon are mallards, widgeons, pintails, red-heads, and now and then a flock of canvas-backs. A pair have stolen away from the many, and with silent flight are coming down the marsh skimmering the rush tips, until they see a flock of decoys, then they make a wide circuit so as to alight up-wind among the decoys. A form arises from the rushes, a man concealed so well that we did not notice him. The right barrel of his gun belches forth its missiles of death, and then the living bird seeks to escape. The hunter sees its rising flight, he holds a trifle over the bird, a quick report, the bird is centered, and the tiny waves recede from the first bird which has struck the water, and the other has been stricken with death and is with its mate.

The position in shooting is excellent, and the hunter has shown his skill, not only in killing the first bird, but in holding over the second one, for he knows should he shoot directly at the climbing bird he would shoot under it, for by the time the pellets reached where the bird was, it wouldn't be there. The beginner must remember that birds going from him and not high from the surface, are almost invariably rising. He must, therefore, hold over them, according to the distance they are from him. Shooting under is a great fault with all. Knowing the fault exists, we should strive to overcome it.

A PRETTY DOUBLE.

A LONG SIDE-SHOT.

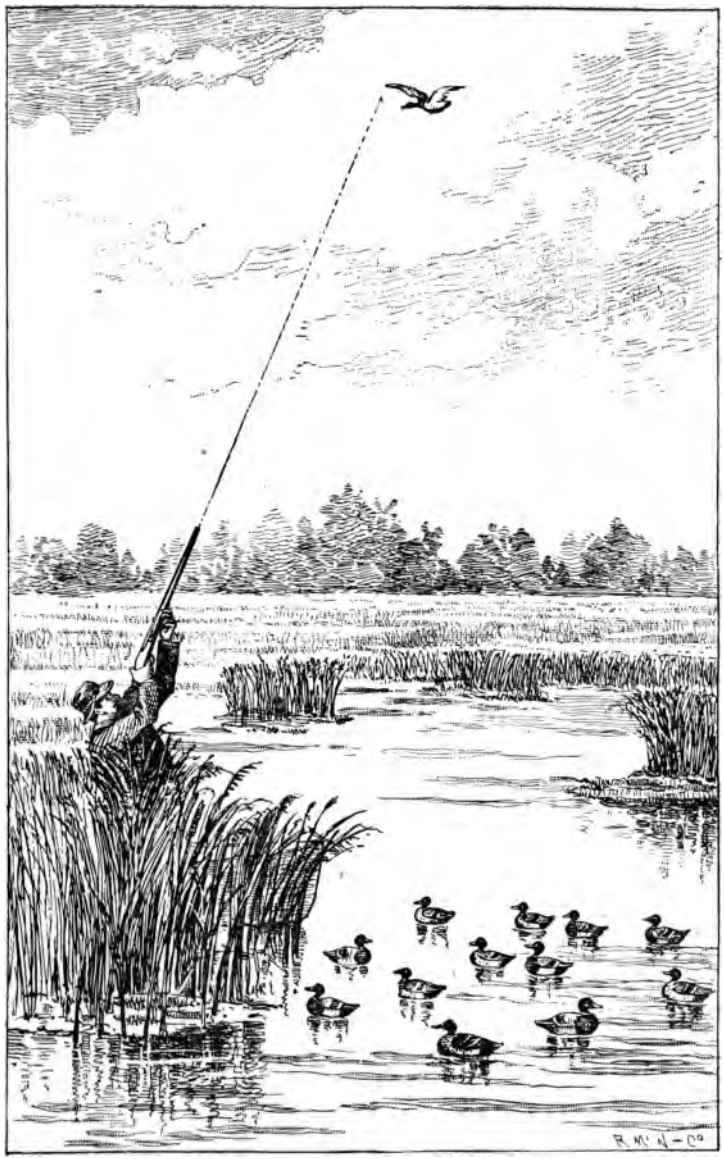
This is one of the most difficult shots to make, estimating the duck from forty to fifty yards away from the shooter. There is so much which is to be taken into consideration. The distance of the bird, the speed with which it is flying, whether it is flying with the wind or against it. The bird represented is a red-head; the day is calm, and the bird is traveling with no intention of alighting among the decoys; therefore the shooter should bring his gun quickly and steadily to his shoulder, bringing it up a trifle behind the bird, then swing on the bird, then give the lateral swing ahead, and when he thinks the gun is pointed from six to eight feet ahead of the bird he should pull the trigger. There must be no stoppage of the swinging, for if he misses with his first barrel his gun must be pretty nearly in position to shoot again. While to the novice this shot will be very difficult, because he will not hold far enough ahead, the experienced hunter will bring his birds down very often, for he has learned to judge height, speed, and distance of ducks, and knows the velocity of shot and how he should hold to have the bird fly into the mass of the flying missiles. The illustration is natural, not only in the flight of the duck that has no intention of stopping, but also in the surroundings, which are so enticing as to make us envy the hunter, and creates in us a strong desire to carry out the experiments for him.



A LONG SIDE-SHOT.

SHOOTING AN INCOMER.

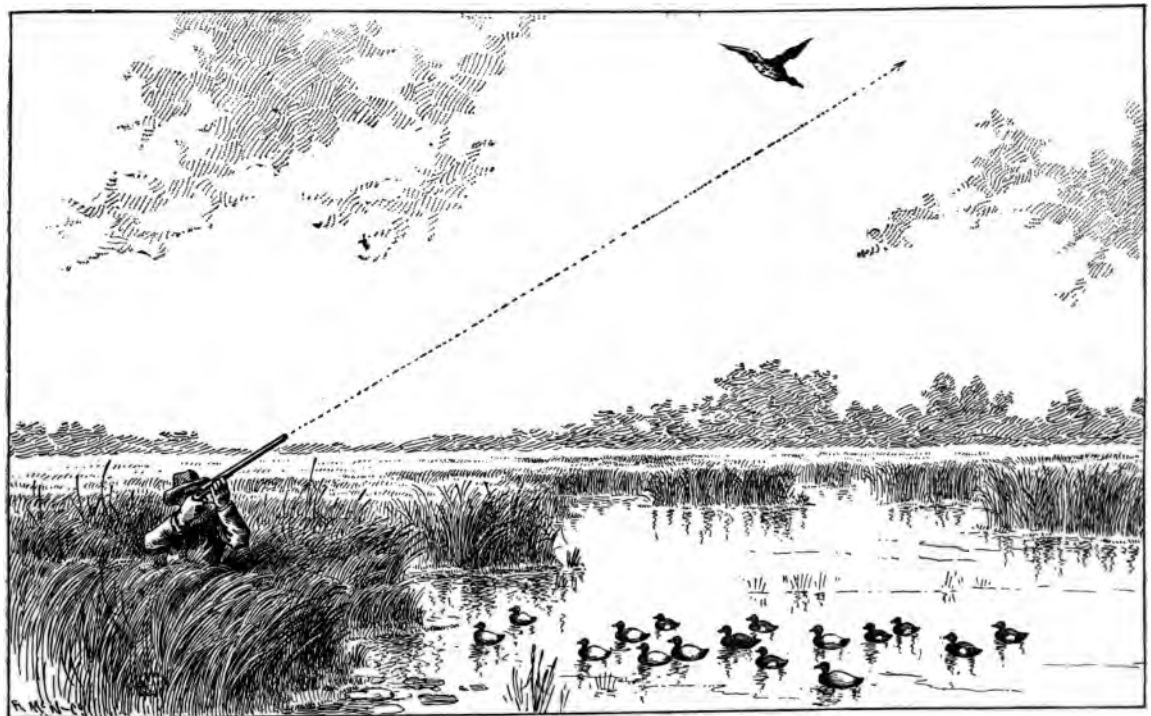
It is surprising how difficult it is for some sportsmen to kill an incoming bird. And many who are brilliant in the shots they make, and can seemingly kill a bird in any other mode of flight, acknowledge their inability to stop the overhead incomer. A sportsman called at my office while I was writing this article, and he confessed that the simple illustration opposite this page gave him a knowledge he never before possessed. After the lesson has been learned, the stopping of an overhead incomer is as simple as it can be. The miss occurs by the sportsman shooting under and behind the bird. Were the reader to assume the position shown in the illustration, and have a bird coming as depicted there, he would find that the barrels of his gun have hidden the bird from view; then is the time he should fire. To me the illustration presents one of the easiest shots in flight shooting, and after one has accomplished it a few times there is nothing more simple. As the duck comes along, and when it is about to pass over the shooter, he should bring his gun up with deliberation, cover the bird, then swing in ahead of it and keeping the gun moving at the same rate of speed, pull the trigger the instant the bird is hidden by the barrels. If the shooter will follow those instructions, he will be surprised how easily and invariably he will kill the bird.



SHOOTING AN INCOMER.

THE DESCENDING SHOT.

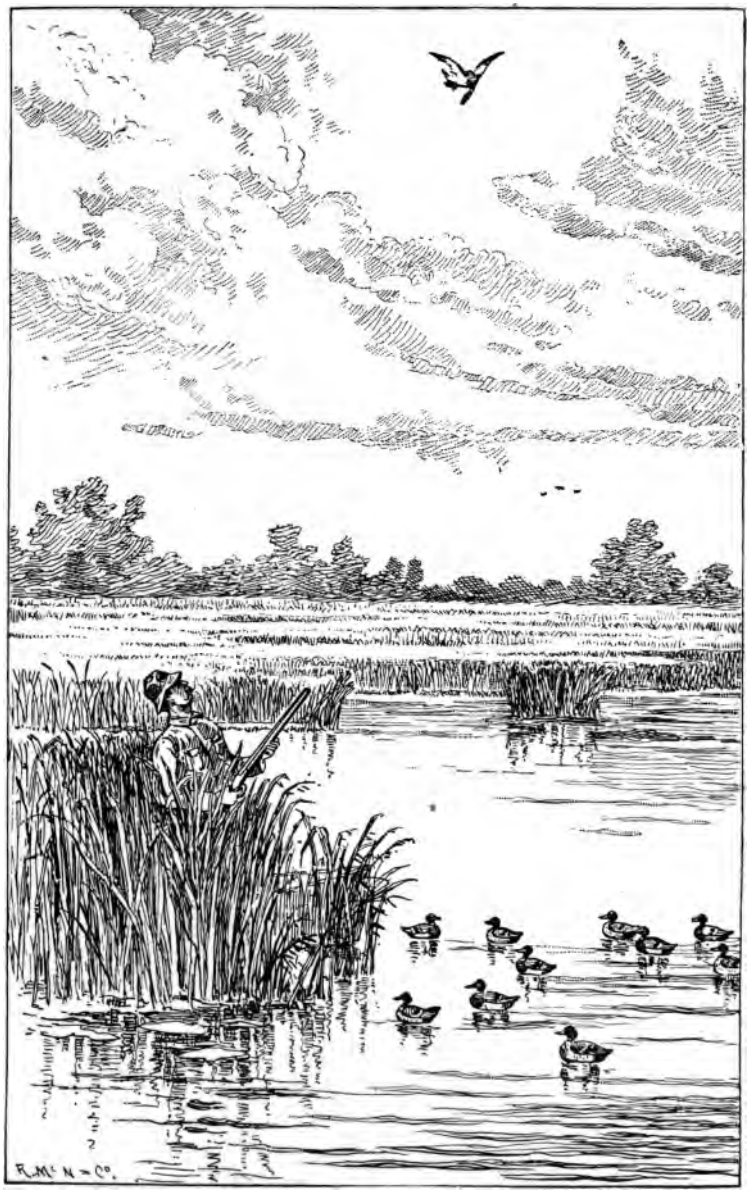
The engraving shows one of the most difficult shots to be made in wing shooting. The beginner will readily learn to make straight-away shots on prairie chickens and other upland birds, and he will, with greater difficulty, discover how to kill birds flying at different angles, so long as they fly away from him. But when they approach him and come, aided with the wind, at a speed of 100 miles an hour, and he knows from their height that, owing to their great speed, it will be impossible for them to alight without making a circuit, then his greatest calculation and skill is called into play. The illustration is that of a green-winged teal coming down-wind. It does not intend to alight, but swoops from its elevation near enough to be within killing distance. We must reverse the rule of holding over, and, on the contrary, be particular to hold well under. The illustration may seem as though the shooter were holding too far ahead; at the same time, when a teal is coming down-wind with the intention of flying miles without alighting, and is assisted by a strong wind, it seems at times as if it is impossible to lead them too much. I have frequently killed teal ducks when I knew I was holding twenty feet ahead of them. When a sportsman has learned to judge the flight of a teal, canvas-back, red-head, blue-bill, or mallard when it is swooping down, as if to investigate decoys with no intention of alighting, he can rest assured that he has solved the problem of bagging birds in the most difficult position they assume in flight.



THE DESCENDING SHOT.

UNCERTAINTY.

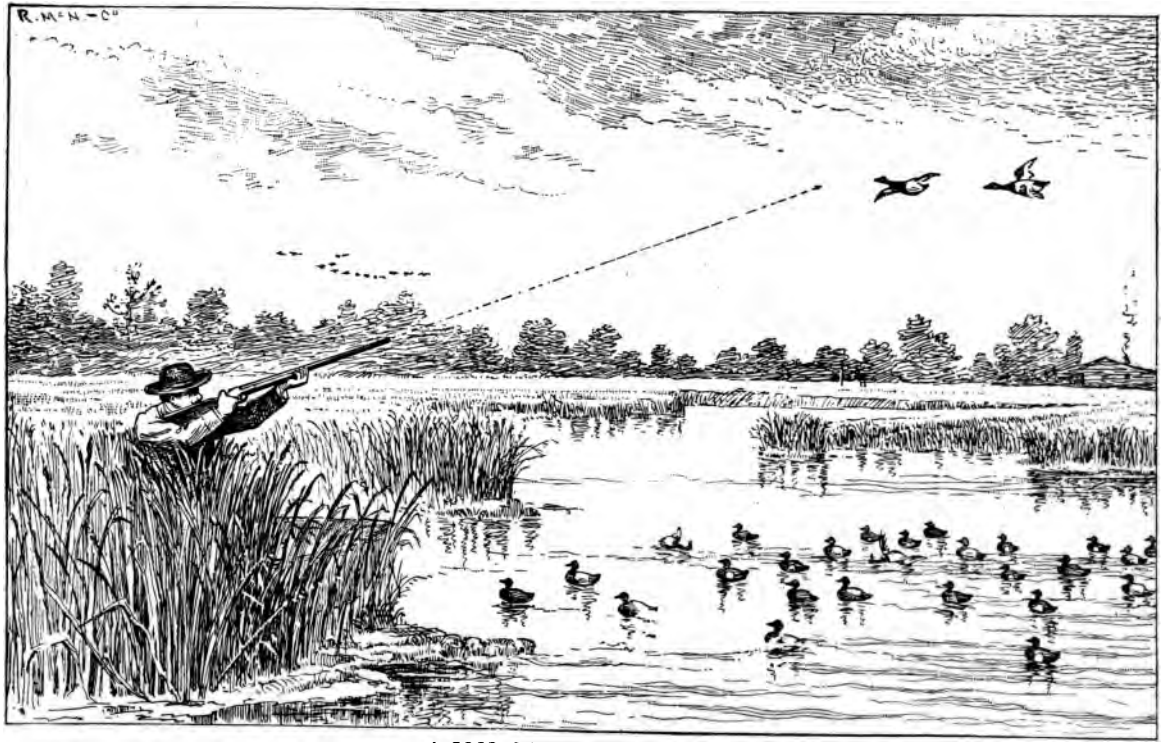
There is a well-known saying that "He who hesitates is lost." At the same time, hesitation is often necessary in order that one can accomplish the desired result, which he can only do by calm and careful deliberation. The picture of the mallard duck presents a study worthy of careful consideration. The bird was traveling high at the shooter's right, suddenly it sees the decoys; it has reached a point even with them, and, desiring to alight among them, it has turned its head. Its body has not lost its momentum, having attained a velocity in its swift forward flight, and, while we advocate holding ahead of a bird's head, were the shooter to do so now it would throw the shot behind the bird, because the inertia of the flight is forcing the body of the bird in the direct line in which it had been flying, although its head is turned while it strives to wheel in the direction its bill is pointed. The shooter sees this, he grasps the situation, and will act accordingly. Were he to shoot as the bird is now placed, he should hold from two to three feet to the right of it, depending on its height and speed. But, waiting as he is, a couple of seconds will change the bearings of the bird, then, recognizing the rules of velocity, speed, and distance, which have heretofore been laid down in this book, he will hold ahead of the bird, as the exigencies of the case demand. This being able to instantaneously tell where to hold; with the knowledge of why one should so hold, is one of the great secrets of a shooter's skill. Practice and experience are necessary to teach us how to shoot, and our lessons are made easy by study and intelligent application of the knowledge we receive.



UNCERTAINTY.

A GOOD CHANCE FOR A DOUBLE.

The illustration is a pretty one, full of life and suggesting pleasant memories. The opportunity is such as is presented at times to every duck shooter, and the experienced will take advantage of the position of the birds. The steady flight of the bird in the lead will give the shooter an easy shot. He has decided to shoot, and, allowing for the speed of the bird, he aims such a distance ahead as the speed of the bird demands. The second shot will probably be more difficult, for the second bird will become alarmed at the first shot and will climb up, or possibly increase its speed in an unvarying line of flight. In the first instance, the shooter must hold ahead and over; the second, ahead and a trifle under, since the bird is descending. The inexperienced shot often makes a mistake in the selection of the bird to be fired at first. The temptation is strong at all times to shoot first at the nearest bird. But the old duck shooter will kill the farthest bird first, provided it is in range, then the other bird is still within reach, and by this display of generalship a double is scored, whereas, if the nearest bird is shot at first, the other may get out of gunshot before the shooter can be ready to shoot. One must keep cool in duck shooting, displaying no anxiety, and the amateur should always bear in mind that there is no fear of birds getting too close to him. The pair of birds in the illustration are coming on prettily, and judging from the skill displayed by the hunter in his first shot, we are firm in the belief that he will make a double. The reader will undoubtedly wish himself placed as is the hunter. Surely a position to be desired by all lovers of the gun.



A GOOD CHANCE FOR A DOUBLE.

QUAIL SHOOTING.

The illustration shows a difficult shot in quail shooting and one which requires a keen eye, a steady nerve, and a thorough application of the laws of velocity and flight to make the shot successful. As we have seen heretofore, the distance one holds ahead depends to a great extent on the lateral swing one gives to his gun. The slow moving gunner having on that account to hold farther ahead than he who brings his gun up quickly and swings it forward with a quick nervous movement. The engraving shows a double shot. The birds are rising, and, as they sprang from the recess of the old rail fence with a rush and roar of wings, the gunner saw the necessity of holding a foot over the first bird, which he did and killed it with a center shot. The report of the gun has been the means of increasing the flight of the other birds. The bird going to the shooter's left is flying at that difficult angle in which are to be considered distance, speed of bird, and velocity of shot. The bird is not flying at square right angles but is veering away slightly. The shooter has observed this, and as he estimates the bird to be about forty yards away from him, he has pointed the gun fully six feet ahead of the bird and a trifle over it. It is proper to do this, for at that distance No. 8 shot will drop slightly, and should he hold too far ahead (something that is rarely done), he will even then be successful for the shot will string along, many of the pellets following several feet after the body of the charge, yet retaining sufficient force to kill the bird.

QUAIL SHOOTING.

A MORNING AMONG TEAL.

There is a charm about teal shooting which coaxes the sportsman to the resorts of these dainty birds at times before frost has tipped the rushes or silvered the meadows in the adjacent fields. September is the month when teal are hunted in the north, and the warm bright sunshine of mid-day finds the birds feeding in the marsh, or basking along the banks of some stream, or at the sides of a dilapidated muskrat house.

The rapidity of flight of the teal is proverbial, and as one of them goes down-wind, assisted by a breeze which whistles through the tops of the rushes, we compare its flight as being a trifle slower than lightning. It takes a slight blow to kill teal, and No. 8 shot is large enough. Teal are usually found in large flocks, and the hunter often kills many at one discharge of the gun. The blue-wing teal is larger than the green-wing, and is prized higher as a delicacy. The shooter will find an opportunity to test his skill if he will try to stop teal when they are flying singly or in pairs. It is necessary to hold well ahead of them and swing the gun swiftly, for the birds go with the speed of a hurricane. Where one shot is fired ahead of a single teal, there are ninety-nine fired behind. Better hold well ahead, then the stringing shot will do much for the novice in aiding him to bag one of our swiftest flying water fowl. A gun with the right barrel modified and the left barrel full choked is an excellent gun for this shooting. Personally, I prefer a full choke for all duck shooting.

A MORNING AMONG TEAL.

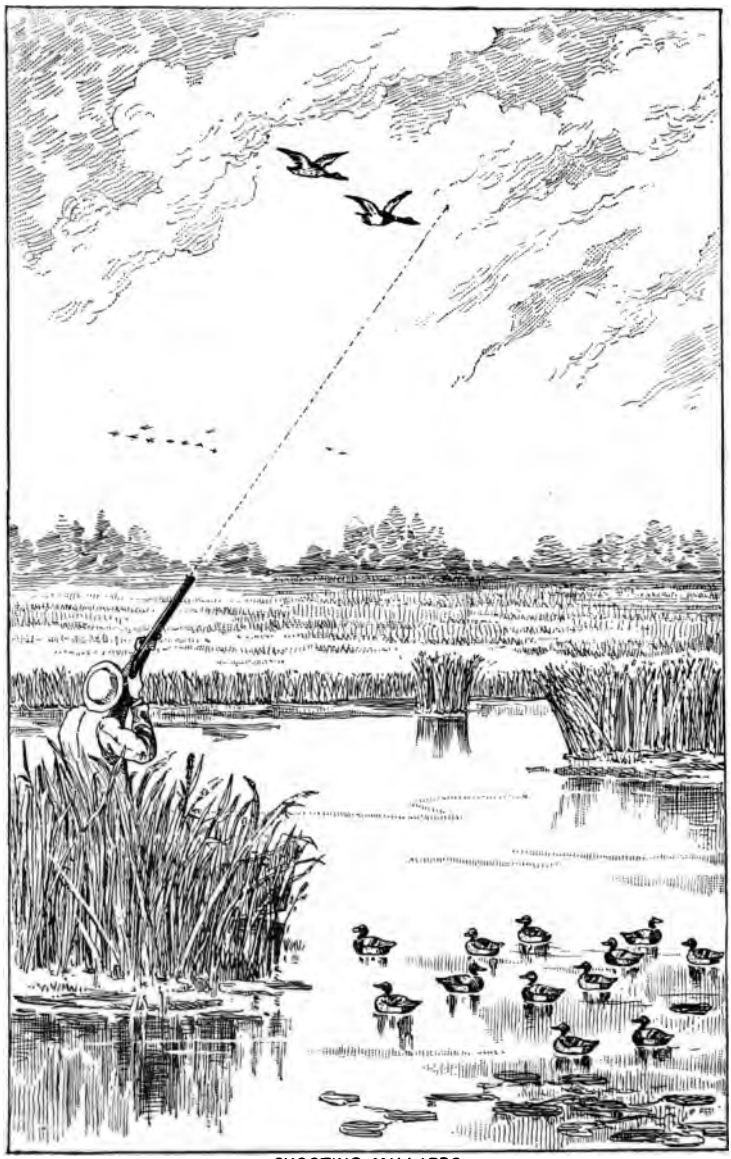
SHOOTING DUCKS IN A SNOW STORM.

Disagreeable though the day may be, the sportsman finds keen delight while shooting ducks in a snow storm. The day creates an uneasiness in the birds, and they fly here and there, indeed they seem to be everywhere when the snow is flurrying before the fitful winds. There is an uncertainty about shooting ducks then, for the falling flakes, the leaden sky, and the distracted birds, bother one as to where to aim. The illustration shows this. The birds have unexpectedly seen decoys through the falling snow, and when the hunter fires, they seek escape, each one starting out for itself. There is an important matter to be considered when shooting during a wind or snow storm, that is, the drifting of shot, and too many shooters do not give it proper consideration. When they do shoot at a bird at such a time they should hold to one side, allowing for the wind which they know will drift the shot. In flight shooting many gunners make no allowance for drifting shot whatever. I had a lesson in my early days of shooting which satisfied me of the necessity of allowing for the wind blowing the shot one side. The confusion of a snow storm caused mallards to fly singly and in pairs. The wind blew so hard that the birds could hardly make headway against the storm. I seemed to aim right, but miss after miss was the result; finally in firing a few feet ahead of the leader, which was standing nearly still, I killed a duck fully four feet behind him. I profited by this discovery and had no difficulty afterward. The shooter should remember this, and allow for the wind drifting the shot when the birds are more than thirty yards from him.

SHOOTING DUCKS IN A SNOW STORM.

SHOOTING MALLARDS.

The mallard duck is one of the easiest of water fowl for the hunter to bring to bag — one of the largest of the duck species, and one which is hunted the most. Mallards are hunted in many ways, the ways being dependent on the locality where they are found. In the spring-time they are found on the overflowed prairies or in the bottom lands where the water has stretched over the lowlands, making the most enticing place in the world for the birds. As the birds are seeking their summer home in the far North they stop to rest and feed in the timberland, and tarry for days, often for weeks. They are influenced by the weather, and if the indications are that spring has come, they will soon take their departure for the North. Spring shooting of ducks is fast coming into disfavor, and it is only a question of time when it will be abolished. October and November are the most delightful months for duck shooting, and the hunter who seeks birds in the marsh at such a time finds them in the best of condition, and the sport he enjoys on lakes and in cornfields, is beyond pen description. The best mallard duck shooting is to be had over decoys, and in that manner the greatest number are killed. As the birds fly from thirty to fifty miles an hour, they must be held ahead of, according to their distance and estimated flight. As the birds are large, they look closer than they actually are; therefore, the shooter must remember that fact and hold well ahead. No. 6 shot is the best size to use over decoys, and in flight shooting 5, 4, or 3; the latter size when the birds are wild. A full-choked gun is the best bored gun for mallard shooting.



SHOOTING MALLARDS.

THE CARELESS HUNTER.

Often in the middle of the day the duck shooter will, after having come to the conclusion that the flight has ceased, seat himself on the point of some slough and accept the caresses of the mid-day sun, forgetting for the time that a pair of mallards, or more desirable still, a pair of geese are apt at any moment to approach his decoys. The dog has caught the diffidence of his master to the situation, and has stretched himself out enjoying a nap which has taken him in thought far from his surroundings. The hunter feels he must keep awake, and, after repeated yawns, congratulates himself with the thought that the day is glorious if the ducks have ceased to fly. He has tried his locks hundreds of times, for he must do something to pass away the time, and, instead of frequently scanning the horizon to see if game is in sight, he raises the hammers, thus trying the ease in which the springs work, and examines the stock. The barrels are to his liking, and the steel is what he always expresses his admiration for. Suddenly he sees a shadow flit across the rushes at his feet, and turning his head he sees three geese shying from him. He springs to his feet; bang! bang! goes his gun, but the birds are out of range. He misses, then invariably blames his luck. There was no luck about it. Just careless indifference; a carelessness which should be avoided by all hunters. Vigilance is necessary at all times, and if a hunter does not watch for game he will lose the opportunity of many good shots and will afterward wonder how it happened. The beginner is therefore cautioned to scan the horizon frequently and not to let wild fowl slip in unawares and then get away without having been fired at.

THE CARELESS HUNTER.

SHOOTING GEESE IN A WHEAT FIELD.

There is an electrical effect given the hunter when he is concealed in a wheat shock watching the approach of a large flock of Canada geese, and as they answer his repeated cries by a vociferous "Ah Unk," he hides still closer and refrains from calling again, for experience has taught him that the birds, having seen the decoys and answered his call, will come to the decoys if he remains quiet. Geese are about the wariest of wild fowls, and yet, one who has studied their habits and has hunted them repeatedly, finds no difficulty in circumventing them. Wild geese are regular in their going to, and returning from, their feeding grounds, and when one hunts them, advantage should be taken of that fact. On account of their size the beginner thinks it will not be difficult to kill them. The error is in shooting behind them, for, while their bodies are large, they fly rapidly, and one must hold well ahead in order to kill. Decoys should always be used when shooting from pits, sand bars, or in the field. At times hunters will get in the line of flight, shooting at the birds as they fly to and from their feeding grounds. In the beginning of his goose shooting the author used heavy ten-gauge guns; but as he learned the habits of the birds and how to hunt them, he found that when shooting geese over decoys, he can kill as many with a twelve-gauge as he formerly did with a ten-gauge. The gauge of gun to be used is a matter of personal preference. An ounce or an ounce and an eighth of Nos. 1, 2, or 3 shot is a sufficient quantity to use in a ten or twelve gauge.

7 SHOOTING GEESE IN A WHEAT FIELD.

From the American Field, by permission.

DR. W. F. CARVER.

CHAPTER XIII.

WOMEN AS SHOOTERS.

THE wife of an old school friend recently said to the author, "I don't wonder that you like to go hunting!" "What," said he, "has interested you in hunting?"

"What has interested me?" she said. "Everything. I was on an outing with my husband; they gave me a gun to shoot; I fired it, and, although it almost deafened me, I fired it again, and again, until my shoulder was black and blue. I learned to hit a stationary mark, and then, when I killed a bird, it was the proudest moment of my life."

They had given her a heavy ten-gauge gun loaded with black powder, so the reader can imagine the smoke, the noise, and the recoil she experienced. When she was told of miniature guns; how effective they were with light loads of nitro powder; of the absence of smoke, the slight noise and recoil, she was carried away in delightful contemplation, and intends seeking the pleasures of the field in the companionship of her husband. When a woman has once become an expert with the rod, she finds as keen if not a greater pleasure than does her husband or brother. There are few women who do not enjoy the whip-like crack of the rifle. And now that nitro powders have come into such general use, ladies can use a shot-gun, for noise is decreased, smoke is abated, recoil is lessened, and their chance of hitting the object are increased more

than formerly. Woman is the purest, best, and gentlest of animate creation. She is our guide, our inspiration. A good man is made infinitely better by his associations with her, and her presence exerts a refining influence wherever she goes. She is the best work of God. Nature comes next. Who loves the rippling streams more than a woman? Who can find sweeter music in the æolian strains which breathe through the pines? Who can see more beauty in the silvery frost which droops the blades of grass until they shine like diamonds or drift to shaded pearls? And then, at sunset, a time when the colors of the rainbow vie in their dissolving beauty, who can point out those beauties and bring them to your mind as delicately as your wife or sister? You go forth in pursuit of game, cold and practical, seeing but little of the beauties of earth and sky. She, were she with you, would see new thoughts and treasures in the vales, in the hills, the prairies, and the streams. She goes riding with you. She goes walking with you. She fishes with you. She sails with you. You take her on all your outings except the chase, the very place where she would find untold delights, and where she will obtain a bloom on her cheeks which will reward you for your thoughtfulness. I have talked with many women who have become accustomed to fire-arms, and they enjoy hunting just as much as the men, and you know the love of dog and gun never dies out within a man. He may say he doesn't care for hunting, but the love of it is a slumbering fire, apt at any moment to break forth into a violent flame. I am strongly in favor of women participating in our hunts. A banker friend of mine has taught his wife to shoot. Can you imagine anything purer or

"WANDA."

more lovable than this man and his worthy wife, with whom I have the honor of being acquainted, starting out with horses and light wagon, she dressed in a becoming costume, skirts to her knees and leggins buckled over her walking shoes, setter or pointer at her feet? Imagine such a scene. What would be the gist of their talk? Naturally of the sought-for game. "Don't you think that swale a likely place for grouse, dear?" or "Don't you think we had better let the dog work that thicket?" Do you know what such trips do? They cement the love of husband and wife to an extent that nothing on earth can sever or contaminate. The reader will see that I am in favor of women participating in field sports, and I suggest to every husband to invite his wife to accompany him in field sports the same as on other outings. My dear friend, W. L. Colville, known to many sportsmen by the nom de plume "Dick Swiveller," told me his young daughter, aged about sixteen, has become a proficient shot, and there is nothing she enjoys so much as shooting in his company. I take this excerpt from a recent issue of the *American Field*, and it most thoroughly corroborates what I have written:

"How she could see her husband start off on a bright crisp morning, with horses and dogs alert and ready for the prospective fun, and stay behind because of what her neighbors might think or say of her going with him, I can not imagine. I say, how could she do it? If that were the only obstacle, why should she not go if she liked and her husband approved? And I judge he did. To make the question more general, would there not be a little more happiness in the world if some of us studied our husbands' tastes a little more? How very few good riders we have

CONFIDENTIAL FRIENDS.

among American women. How very few of us know anything about a gun or the good points of a dog. Would it not be an accomplishment to brighten up our knowledge on these things, particularly when our husbands and sons are so much interested? Don't you think it would please them? I do. More than that I think they would be a little bit proud of us if we could talk intelligently with them on their pet hobbies, and accompany them, too. When practicable, I think it is not only womanly, but admirable to see a woman genuinely interested in horses, dogs, and hunting. We need not be expert shots, or become unduly ambitious to vie with 'Annie Oakley,' or others justly celebrated, but we certainly need not be deterred, by the criticism of people who have no knowledge of those things, from making our husbands and sons happier, also ourselves. For happiness is reflected by a hearty coöperation in what to them means so much. Before me now passes a vision of my first hunt, fresh as if it had been yesterday. A broad sweep of prairie in Western Texas in the month of December; blue sky above and sunshine everywhere — warm as spring — with just sufficient crispness in the air to make one feel like taking in a good long breath, and thankful and glad they were alive. Our broncos were impatient to be off, and the dogs, well-bred greyhounds, sniffing the air. We were soon in the saddle and away after jack-rabbits, a young ranchman, a friend and neighbor of our host, leading us with our host and hostess, my husband and self closely following. How the ponies' feet flew over the prairie, and how delightful and exhilarating it all was. And when the hounds had started up a hare, with what zest the broncos entered into the sport; with only a

gentle touch of the rein to guide they obeyed unerringly the direction their riders indicated. To me, a novice, it was most exciting; and when we had run down several hares and secured the ears as trophies, we found the morning gone and our tired but happy selves possessed of ravenous appetites. Other delightful days of duck hunting in the saddle followed; long gallops over the prairie, traversing miles without leaving the ranch of our friend. Then came adieux, and we were northward bound."

Mrs. Milton G. Lindsley is a charming woman, cultured and refined, and an ornament to her sex. She is pure in thought, gentle as becomes a woman, and her nature is enrapport with the pleasures afield. Mrs. Lindsley is a writer of note, her writings usually being over the nom de plume of "Wanda." She is an expert shot, being perhaps the best of her sex in the United States, with the single exception of Annie Oakley. Her husband is one of the noted powder manufacturers of America. Mrs. Lindsley is thoroughly posted on gunpowders, and the shooting fraternity, as well as her husband, know that she is successful in business as well as accomplished and versatile in the walks of life. A woman like Mrs. Lindsley, in a gathering of sportsmen, is like a ray of sunlight drifting through the stalwart trees. The physiognomist will see in her features, as she stands, a trace of sorrow, as if a woman's heart was touched with pity because a life had been taken. But the look had disappeared in the other illustration, for the soft stroke of her hand has created a loving understanding between mistress and dog. She loves her dog, and, knowing as we do the intense devotion of the canine race, he would gladly sacrifice his life in her behalf.

No woman has ever reached the degree of perfection with fire-arms that Annie Oakley has. She stands peerless as the greatest shot in the world of her sex, and I know no better way to show her successes and accomplishments than to reproduce here what I wrote of her while the World's Fair was in progress:

ANNIE OAKLEY.

Sitting, as I did, in the grand stand at the Wild West congress of the rough riders of the world, and noting the flashing colors of the costumes of the many people who represented different nations, I marveled at that unique display and watched the last rider as he made his exit. Then a vision appeared; a woman's form passed gracefully into the arena, hundreds of hands clapped their applause, and Annie Oakley, dressed in a tan-colored suit, smiled and bowed and modestly tipped her broad hat to admiring thousands. She stood in the presence of that assemblage the empress of her art — the most skillful exponent of expert marksmanship of her sex in the world. The rapidity of her shooting, and her wonderful accuracy in hitting the objects fired at, astonished and captivated all. Round after round of applause greeted every shot. Then the audience were stilled by the announcement that she would break eleven balls thrown into the air, using five different guns in accomplishing the feat, and that this would all be done in ten seconds. The 12,000 people sat with bated breath; the crack of a gun broke the stillness; this was followed by repeated reports with astonishing rapidity and regularity, and in the time announced, the last ball was flying into a thousand fragments, her smoking gun lay upon the table,

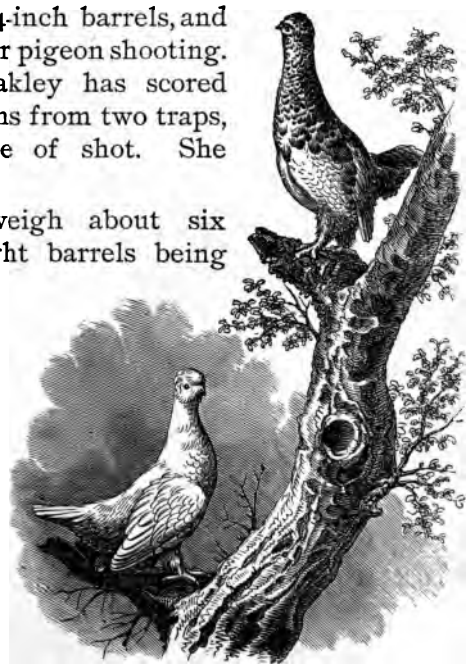
ANNIE OAKLEY.

and she, the most expert shot of her sex in the world, stood for an instant bowing her appreciative thanks for this recognition of her skill, and then she fled to the exit like a frightened deer, pursued by the applause and cheers, and encouraged by waving hats and handkerchiefs of those who paid tribute to such wonderful skill.

While Miss Oakley has shown such marvelous work with the shot-gun, she is equally at home with a rifle or revolver, and whether in the exhibition of fancy shots with a rifle at small objects thrown into the air, at stationary targets, or in the field, she can successfully compete with any man. As a revolver shot she has few equals. If she has any superiors, it is because she is so occupied with her professional duties that she can not find time for practice. I saw evidences of her skill with a revolver, where she had, just prior to my coming, tested a beautiful Smith & Wesson 44-caliber, and at eleven paces she had put four out of five balls into the center of the ace of hearts. Many of her sex are experts when firing at hearts, but I question if there is another woman in this fair land who can pierce the heart aimed at four times out of five, especially if they will keep twelve paces away from the object of their aim. The revolver used by Miss Oakley is a beautiful one, gold mounted, highly chased, with pearl handle.

Shooting as much as she does, it is necessary that she have a great many guns. The inference is that she uses guns of one particular make. This is not so. She is exceedingly impartial in this respect. I was permitted to examine many of the fine guns used by Miss Oakley in exhibition shooting, and noticed among them one Charles Lancaster ejector, one Charles Lancaster non-

ejector, a Cashmore hammerless, a magnificent Smith ejector with a gold figure of herself inlaid, a Parker hammerless, a Scott Monte Carlo, a Scott ejector of highest quality, and an exquisite little Francotte ejector with Whitworth barrels. The value of the guns mentioned is $2,500. The rifles shown were Lancaster oval-bore .360 double-barrel, Holland hammerless .32-caliber double-barrel, a magnificent Marlin repeater, and a couple of handsome Winchesters. She also showed me two single-barreled pistols made by the celebrated maker, Gastinne Renette of Paris. These pistols have 14-inch barrels, and are made expressly for pigeon shooting. With them Miss Oakley has scored nine out of ten pigeons from two traps, using one-half ounce of shot. She shoots binocularly.



Her shot-guns weigh about six pounds each, the right barrels being bored modified, and the left full choke. Her load for targets is 2¾ drams of nitro powder and one ounce of shot. For live pigeons she uses three drams of powder, but the shot charge is unchanged; an ounce of shot is used on all occasions and for all kinds of game. Miss Oakley has demonstrated time and again the wonderful efficacy of the

loads she uses. With her the scoring at no time is the result of a scratch or an accident. The center of the charge strikes the object fired at. That her position is correct is shown by the remarkable scores she has made. Using one ounce of shot, she was offered a purse of $200 if she could kill forty out of fifty selected birds, Hurlingham rules. This event was shot at Gloucester, N. J., July 30, 1888, and she won by scoring forty-nine out of the fifty. And again, on October 5th of the same year, at Trenton, N. J., in a match against Miles Johnson, at the State fair, and in the presence of 31,000 people, she again scored forty-nine out of fifty, defeating Johnson, who killed forty-three, and a purse of $300 was awarded her.

Were I to write of her successes in her chosen profession, enumerating the remarkable scores she has made, this article would partake of an advertisement, which Miss Oakley would not approve of, and I am sure I have no intention of intruding. "Some men are born great, some achieve greatness, and some have greatness thrust upon them." This is equally applicable to women. Annie Oakley was not born great. The little house which nestled in the forest in Ohio, the place where she was born, where she spent her childhood days, and where the woods and streams were ever beckoning her to visit them, were the inspirations which in later years aided her to achieve greatness, and having achieved that greatness the sequence was natural, for then greatness was thrust upon her. She has traveled nearly throughout the world; and this modest and deserving woman, who is loved most by those who know her best, has had greater honors conferred on her than has any other

"WANDA" AND HER PET.

American woman. She is not a champion shot as the world recognizes champions. She does not desire that title; she has no ambition to vanquish rivals, and when new stars appear ambitious to excel her she ever has a kindly word for them. Her skill is a gift, enlarged and cultivated by assiduous practice until nearly perfection has been attained. Her life is a living example of the nobility of pure womanhood, and an example for American women to join their husbands and brothers in pursuit of game and fishes. I can conceive of nothing more charming than a huntress, skilled as is the sterner sex in the habits and resorts of game, clothed in a pretty suit which would have made their goddess Diana envious, enjoying the delights of nature which can best be found in forest and on stream.

Heads less equally balanced than that of Annie Oakley would have long since been turned by the unsought honors which she has received, but she is of a retiring nature, and when she modestly complied with my request and showed me the jewels and mementoes which princes, potentates, and nobility had presented her with, there was not in her words or actions aught that would lead one to think she felt she was entitled to them, but rather that those who honored her with jewels and curios of rarest worth were unusually kind and generous. So they were. They appreciated skill which was so marvelous as to be almost beyond belief, and they showed their recognition of her ability by presenting her with jeweled evidences of their appreciation, oftentimes taking them from their persons. Besides the many beautiful gifts of laces, handkerchiefs, and pottery, which were given Miss Oakley when abroad, she has forty-five valuable

medals, brooches, etc. I was permitted to examine many of them. One of the handsomest was a bracelet with crown and eleven large diamonds from the Prince Regent of Bavaria, another a medal from the London Gun Club, commemorative of prizes won there. Miss Oakley is the only woman ever permitted to shoot there. She participated by special and unanimous request, and won the highest honors. This medal has an embossed view of the London Gun Club grounds. It is circular, about two inches in diameter, and was presented in the presence of many of the nobility of Europe by the Prince of Wales in person, who, in delivering it to her, said: "I know of no one so worthy of it." These words are inscribed on the medal. I was also delighted with the design and elegance of a brooch presented to Miss Oakley by the Baroness Rothschild and Oppenheimer of Vienna. It was studded with diamonds. Miss Oakley gave a free entertainment for the benefit of the poor of Vienna, and her services and kindness were so highly appreciated that this presentation followed. One of the prettiest of these valuable mementoes is an oval pin presented by the Baroness de Horn, of Heidelburg. This has the photograph of the donor on the reverse side and shows the face of one of the most beautiful women in Europe.

The manner of giving has much to do with the appreciation of a gift, and she has nothing more beautiful, and surely not more appreciated, than a bracelet given her by a baroness in France who desired she should be remembered, but that her name always remain a secret. She was so delighted with Miss Oakley's skill that she called her one side and unclasping the bracelet from her own arm placed it on Miss Oakley's and said: "This jewel has been in our family over a hundred years; accept it as a gift from me." The bracelet is formed in links of rarest mosaic, and was valued by one of the leading jewelers of New York City at over $700.

The medal and diploma which went with the first prize at Marseilles, France, was the highest honor attainable. To win this Miss Oakley scored ninety-six out of one hundred live pigeons at twenty-eight meters rise, winning $300 besides the medal. The beautiful medal of oxidized silver which she won at Leon, France, carried with it $200 in money. A magnificent trophy is the medal won at Milan, Italy, where Miss Oakley defeated the prominent shots of Italy. She won $200 with this medal. The medal shows the old arena which has existed for 1,300 years and seats 30,000 people.

I am esthetic in my tastes, and therefore admired to the fullest extent these many objects of art. I wondered which she prized most, and when I inquired, her eyes moistened and she said, "This!" and unpinned from her dress a medal which was to her as was the widow's mite, for it was all the giver possessed. The story is briefly told. An orphan boy one time sat outside the place where she was performing. He, ragged, barefooted, and dirty, attracted her attention and appealed to her sym-

pathy. He asked her to see the show. She liked him; she provided for him and clothed him; she obtained employment for him. When that boy received the first money he ever earned, he took every cent of it and bought this medal and sent it to her with a suitable inscription. The boy is honest, industrious, and prosperous. Do you wonder she loves that gift better than any of the others? It is Miss Oakley's mascot, and she always wears it when shooting a match. She changed the whole current of that boy's life and placed him in the channel which leads to a life of usefulness. May he profit by his advantages and rise to bless his benefactress! Annie Oakley has done many other deeds of kindness. I noticed in her autograph album the signature of a countess, who inscribed with love her appreciation of kindness shown her children. Among the sacred treasures of my motherless little girls are tiny lace and silken handkerchiefs sent them from Paris by Miss Oakley. I was therefore not surprised when I was told of her generosity to that orphan boy. No honors she can receive will be beyond her acknowledged worth.

The autograph album of Annie Oakley is a rarity. A noted collector offered her $500 for it, which she refused. He wanted her to name a price, which she declined to do, as it was not for sale at any price. Among the noted names it contains are, Hilda de Clifford, considered one of the handsomest women of the nobility of Europe; Ralph Payne Gallway, the celebrated English writer; Henri Journo, the best revolver shot and one of the best pigeon shots in Europe; Capt. C. E. Speedy, who in the Soudan war disguised himself, stole into the enemy's camp at night and secretly regained the British flag

which had been captured, and returned it to his regiment on the following morning. The queen presented him with a jeweled watch as a partial recognition of his bravery. The album also contains the signatures of the whole of the Chinese and Japanese embassy of London; Lord Wantage, the head of the Wimbledon Camp where international shooting is done; the King of Senegal, who wanted to buy Annie Oakley from Colonel Cody, and offered 20,000 francs for her (he wanted her to kill off the wild beasts of his country, and was very indignant that he could not buy her); Ira Paine, the greatest pistol shot that ever lived — his last signature, as he died a few days after signing his autograph; the Prince of Annam, a black prince; Thomas A. Edison, whose signature attracts more attention than any king or prince; the King of Boudon; Crispi, the Italian statesman. Also the autographs of Prince Regent of Bavaria, the reigning prince; the Duchess of Cumberland, sister of the Prince of Wales; Lady Paget; the Duchess of Holstein, mother of the Empress of Germany; the King of Wirtemberg and his queen; Mary Adelaide, the Duchess of Teck; the Duke of Teck; Victoria Mary of Teck, whose husband is the second heir to the throne of England; Lord Windsor; Lord Ruthven; Philipe, Duke of Orleans; Rain-in-the-Face, the Indian chief who killed General Custer, and who emphasized the importance of his autograph by saying that it was the first time he ever gave it without charging a dollar. Scores of prominent Americans have signed their autographs also, which makes it one of the most valuable albums in the world.

CHAPTER XIV.

TRAP SHOOTERS.

MR. J. A. R. ELLIOTT, of Kansas City, Mo., is one of the best known and popular of American wing-shots. He won the *American Field* championship cup ten consecutive times, the last score being 49 out of 50, and his general average very high. He shot a series of matches with Frank Class, winning with an average of 94⅛; the scores being: Elliott, 98, 95, 92, 90, 96; Class, 91, 99, 89, 95, 96. On the last score, a tie, Elliott killed 24 out of 25, and Class, 23. Mr. Elliott also defeated C. W. Budd by a score of 98 to 96. Dr. Carver defeated Elliott in July, 1894, the score being, Carver, 95, 94, 95; Elliott, 96, 92, 94.

From the American Field, by permission.

J. A. R. ELLIOTT.

CHARLES W. BUDD.

It seems but a few years ago, so swiftly does time speed along, when a modest and unassuming young man bounded into sudden notoriety by reason of his skillful use of the shot-gun. Wild pigeons were plenty then, and at Des Moines, Marshalltown, Cedar Rapids and other points in Iowa, Charles W. Budd speedily gained the reputation of being the best shot in his State. He has attended the prominent tournaments held throughout the United States, and has shot many private matches. Among the high scores he has made are the following:

AT TARGETS.—Won Keystone Championship at Cory, Pa., scoring 98 out of a possible 100. Won Chamberlain Championship at Cleveland, Ohio, on a score of 95, tieing with Mr. Huntington; on the shoot-off Mr. Budd won, breaking 95 again out of 100.

AT LIVE PIGEONS.—Defeated John L. Brewer at Dunnellen, N. J., scoring 92 out of 100. Defeated J. R. Stice at Des Moines, killing fifty pigeons straight; also scored 97 out of 100. He defeated E. D. Fulford at Chicago in two matches, scoring 93 in the first match and killing 49 out of 53 in the second match, when Fulford withdrew. Mr. Budd was defeated at Clinton, Iowa, he scoring 96 to Elliott's 98. He defeated Marshall at Oskaloosa, Iowa, killing 96 out of 100. He defeated J. Frank Klientz at Chicago, scoring 98 out of 100.

Mr. Budd is deservedly popular among sportsmen, and the amateur will always find in him a correct adviser, and one willing to impart valuable information as to the many little things which will aid the beginner to become proficient in the art of wing shooting.

C. W. BUDD.

JOHN L. BREWER.

The position of Captain John L. Brewer is that of the utmost confidence. No man more fully understands pigeon shooting than does he, and he seems to know, at the first move of a pigeon, whether the bird will be a hard or an easy one; and the first barrel is fired with lightning quickness, or with cool deliberation, as the exigency of the case may require. Mr. Brewer has been before the shooting public for twenty or twenty-five years. The following are among the notable scores he has made: At Atlantic City, N. J., in August, 1892, he killed 99 out of 100 pigeons; at Clayton, N. J., 197 out of 200; at Utica, N. Y., March, 1893, 45 out of 50; at Morris Heights, N. J., in April, 1893, he killed 49 out of 50, twenty-one yards boundary — a wonderful performance. Same month: Brewer 87, Work 86, at Wilkes-Barre, Pa.; and Brewer 96, Peacock 87, at New York.

JOHN L. BREWER.

A further record of Brewer's scores may be found in the article regarding E. D. Fulford.

E. D. FULFORD.

No trap-shooter ever sprung into such sudden and prominent notice as did E. D. Fulford. He first attracted attention by his shooting in 1892, and ambitious shooters fell before him like wheat in a gale. He is a wonderful shot, and it is questioned by many whether he has a superior. In February, 1892, he defeated Brewer by a score of 96 to 94. During the same month he killed 91 out of 100 selected birds on a wager that he could not kill 90. Again, 109 out of 120. In September of the same year he broke 198 out of 200 targets. December 8th, at Chicago, he killed 100 pigeons without a miss. Among his other scores for 1892 were: Fulford 96, Elliott 89; Fulford 90, Elliott 85; Fulford 90, Elliott 93; Fulford 96, Elliott 94; Fulford 86, Elliott 85. Fulford 100, Brewer 99; Fulford 99, Brewer 98; Fulford 94, Brewer 94, on the tie Brewer 25, Fulford 24. In 1893 he scored 89, Work 81; Fulford 86, Smith 83; Fulford 92, Thompson 90. At Woodlawn Park, at 250 birds, Fulford killed 223, Brewer 216; and again, Fulford 87, Work 88. Fulford is quick to aim, and uses his second barrel with marvelous effect.

E. D. FULFORD.

HARVEY McMURCHY.

There does not exist a more thorough sportsman and gentleman than he whom we reproduce in perfectness of artistic photography. His position is one of careless grace, yet as perfect as if studied. Mr. McMurchy enjoys the personal friendship of perhaps more sportsmen throughout the United States than any other man. And we question if in all this broad land there is one who does not entertain for him the most fraternal feeling. As a representative of the L. C. Smith gun, he has done more toward the introduction of it than could have been accomplished through any other source, and the beauty, the elegance, the symmetry of that arm as it is to-day is the result of Mr. McMurchy's study, experience, and observation. He is an expert shot, but very few surpassing him in skill. He does not shoot individual matches, but at the trap his name is nearly always among those with the highest scores. As a trophy and indicative of his skill with the shot-gun, he possesses a beautiful diamond charm which he won at Cumberland in 1888, in competition with the best shooters of the United States. It is emblematic of the individual championship for that year at inanimate targets. Every amateur sportsman should study and copy after Mr. McMurchy's position, for it is beyond criticism.

HARVEY McMURCHY.

CHARLES M. GRIMM.

In the World's Fair Tournament at Chicago, in 1893, Charles M. Grimm proved to be the dark horse, and yet those who knew him and his record as a shooter were not surprised at the strong manner of his shooting. Mr. Grimm won first money in a field of many of the best shooters of the United States, scoring 96 out of a possible 100. In the winter of 1891 he shot a friendly race with John G. Smith of Algona, Iowa. Mr. Grimm won, scoring 47 birds out of 50. Mr. Smith killed 44; this was thirty yards rise and fifty yards boundary. At Fonda, Iowa, December 22, 1891, he killed fifty birds straight in a match with Al. Gilson. March 25, 1891, Mr. Grimm shot a match with Dr. Kibby, giving the doctor seven birds to be added to his score. Mr. Grimm won, scoring 49 out of 50. At the tournament held at Clear Lake, Iowa, he shot a mixed race at seventy-five single targets, eight pairs and ten live pigeons, scoring 98 out of a possible 101. Mr. Grimm is a successful business man, being engaged extensively in stock-raising and having but little time for practice, but he shoots with a cool deliberation which always places him very near, if not at the head of the list of those he contends against.

CHARLES M. GRIMM.

ROLLA O. HEIKES.

On Christmas morning, in the year 1856, Rolla O. Heikes made his advent into the world. His genial smile and pleasing presence is welcome at every shoot. He stands without an equal as a target shot, and his shooting is marvelous. He began to use a shot-gun when it was necessary for him to rest it on a log. The entire length of this gun is fully six feet. He still owns it, and it is cherished by him with intense devotion. He first became known as an expert shot in 1878. His first public experience at the trap was at Brownsville, Neb., on July 4, 1878, he winning second place in the tournament. On July 1, 1880, he made his first 100 straight. He has recognized the fact that study and practice are essential to success. Mr. Heikes is also an expert pigeon-shot, and was recently placed at thirty-two yards in the great American handicap. Among some of the remarkable scores he has made, we have the following: Detroit, Mich., 125 straight; South Bend, Ind., 141 straight; Corry, Pa., 181 straight; Corry, Pa., 170 straight; Lexington, Ky., 114 straight; Chicago, Ill., 117 straight; Saratoga, N. Y., 100 straight; Hamilton, Ont., 155 straight; breaking 468 blue rocks out of 500, shooting five different rules; and at Hamilton, Ont., he killed twenty live pigeons and broke 155 targets without a miss.

At the grand tournament at Chicago, in May, 1894, Mr. Heikes won the championship cup, emblematic of the championship of the world at inanimate targets for the year. Mr. Heikes combines all the elements of a successful shot, and it will be a long time before his superior will be found.

ROLLA O. HEIKES.

JAMES R. STICE.

A few years ago an advertisement appeared in all the sportsmen's journals to the effect that the first Parker Hammerless made won the American Field Cup, emblematic of the championship of America. James R. Stice won the cup. He appeared among the galaxy of stars, and as a shooter he was inferior to none. He traveled from ocean to ocean with an aggregation of shooting experts, and when the final result was figured out, James R. Stice stood at the head of the list, for in the days and weeks of successive shooting he held the highest average of all. Mr. Stice has retired from trap-shooting. In the days when he shot his thirty-four-inch ten-bore gun, there was no one who could beat him either at live birds or at targets. He is now settled at Jacksonville, Ill., and is engaged in a profitable business, participating but seldom in trap-shoots, and then only in the vicinity of his home.

JAMES R. STICE.

CHAPTER XV.

PIGEON SHOOTING.

TO THE uninitiated, the shooting of pigeons from the trap looks so little like an exhibition of skill that the field shooter is apt to criticise a miss, and not give proper credit when a good kill is made. There is a vast difference between field and pigeon shooting. A first-class field-shot will soon become a good pigeon-shot. This is not always true to the reverse, for frequently expert pigeon-shots are indifferent field, or especially unskillful wild-fowl shooters, and are thoroughly disgusted because of it. The reason is, pigeons rise at a regular and stated distance, whereas wild fowl, we might say, are never at the same distance twice. The shooting of pigeons from the trap has long been established as a sport of the most captivating character. The rules of shooting them have changed in America, and plunge traps have gone out of use. These traps were so made that the pull threw the birds into the air, and the puller could favor the shooter when he so desired. The traps were placed five yards apart, and were marked "H" and "T"; the selection of the trap was made by chance, the referee flipping a coin. If it came head, the shooter shot from the "H" trap. If it came tail, he shot from the "T" trap. The distance was twenty-one yards from the score, the use of one barrel only allowed. The position of the gun was with the butt below the elbow until the bird was on the wing.

One would suppose that under such rules, with an open bore gun and one and one-fourth ounces shot, that few birds would escape. But the records show there were fewer straight scores made then than there are now, when the shooter stands at thirty yards and uses both barrels. The first trap the writer saw used was decidedly original and answered the purpose admirably. A piece of flooring about fourteen feet long had one end fastened to the ground. About two-thirds to the end of the board, and farthest from the shooter, was a cross piece at an elevation of about three feet. This made a spring-board. A box sufficiently large enough to hold the bird was on the tip end of the board and the bird was thrown about ten feet into the air. The plunge traps known as the Parker "H" and "T" were perhaps the best of their kind ever produced. Among the prominent pigeon-shots of twenty-five years ago, Captain Bogardus was the best; he won his laurels by defeating such cracks as Stanton of Detroit, Tinker of Rhode Island, Ira Paine of New York, Miles Johnson of New Jersey, Nate Doxey of Geneseo, and Abe and John Kleinman of Chicago. Captain Bogardus holds the record at single-barrel shooting, at twenty-one yards rise, he having killed 100 birds without a miss at Chicago, in 1869.

Shooting with one barrel is not enough like field shooting to please the majority of sportsmen. For a time, both barrels were used at twenty-six yards rise. Pigeon shooters finally dropped that manner of shooting and now use five ground traps, and are inclined to Hurlingham rules. A marked improvement has been made in the manner of conducting shoots. Now, all meet on the most friendly terms, and it has become almost a cus-

tom in sweepstake shooting that the ties for a purse divide that purse. This is not obligatory on any one in the tie, for if one insists, all must shoot off, or at least they must shoot until the one that desired the shoot off has been shut out. The pigeon-shoots of to-day bring together men who are experts, and who are in constant practice, many of them representing guns, ammunition, or sportsmen's supplies, and these men attend nearly all prominent pigeon tournaments. That these men shoot well is not to be denied. It is because they can shoot so well that they represent the houses they do. But if their skill is great, it is no greater than their courtesies and gentlemanly conduct. The amateur will always find these men willing to give advice to help one in acquiring the art of shooting. Pigeon shooting is an expensive luxury, good birds come high, and as a general thing a division of a prize, after one has paid for birds and shells, convinces the most conceited pigeon-shot that the net results can be estimated in one word — that word is *fun*. Where one man makes any money out of pigeon shooting, ninety-nine lose. Take it year in and year out the man who indulges in a great amount of pigeon shooting will find that there is no money to be made at it. Neither should there be. Tournaments should be a concourse of kindred spirits, gathered together for the purpose of a pleasant and genial time, a reunion of men who think alike and enjoy being together. Every man has to spend a certain amount of money in this world for pleasure, and if there is a class of men who can get more fun out of a few dollars than can pigeon shooters, I don't recall them. The new generation finds a delight in smashing targets. The older generation want to shoot at something which

has feathers and wings. This is not surprising when we think of the thousands of wild pigeons which were formerly used in trap shooting. Wild pigeons are not as hard to kill as tame ones; they fly swifter but their line of flight having once been mapped out, they rarely swerve from it. Pigeons should be killed as close to the trap as possible. Outsiders will often remark that Smith or Jones is favored with easy birds, whereas the birds would have been as hard as any of their competitors had they permitted the birds to get a start. The secret in successful pigeon shooting is not alone in killing the hard birds, but it also consists in killing the birds before they become hard flyers. When a man goes into a pigeon-shoot he should take every honest advantage of the bird and rules. If he doesn't, some one else will, and he will have to pay for it. It is very trying for the beginner to stand in the presence of hundreds, perhaps thousands, and shoot, especially when one bird may mean a great many dollars to him; at such a time he nervously fingers his gun, and often misses because of over-anxiety. On the other hand, the old pigeon-shot is both cool and cautious; he shoots at each bird, whether it be one or one hundred, as if that bird was the one he particularly needed. He is as cool as can be, and could not be moved, not if a house was to fall on him, for amid the ruins he would not forget his rights, and his voice would be heard sternly crying, "No bird," and he would claim another on the ground that he had been interfered with.

It is exceedingly disgusting to a beginner at pigeon shooting, who, perhaps, has achieved a local success, to shoot among a class of veterans, and then find he is not doing himself justice. It is but natural at such a time

to explain, and he seats himself beside some one who is bowling them over from every trap, and says, "Confound the luck, I don't see how I missed those three. Why, last Friday me and Bill Jones were shooting, and I killed fifteen straight; harder birds than these, too." His listener will smile that sweet smile which one always has when he sees he is in for first money, and probably alone. He sympathizes with the poor fellow who is missing, for he has been there many times himself. When a pigeon shooter is doing poorly there is nothing so consoling to him as to have an attentive listener. But let me say to you, my reader, when you miss, offer no apology for it; every shooter present is sorry for you (except, of course, if your scoring would tie you with him). The man who doesn't miss is not alive, neither has he ever lived, and, judging the future by the past, he never will live. It is taken for granted, when you attend a pigeon shoot, that you are there for one of two reasons: First, you can shoot; or, second, you think you can. If the first is correct, you will have a heap of fun, and others will pay for it. If the second, you may still have the fun, but, living up to the golden rule of doing unto others as you would have them do unto you, you must contribute to them. The amateur should never enter into a shooting match unless he can afford to lose. The strain on a man who feels he must win, and can not afford to lose, is too much, and seriously handicaps him. It frequently happens that if you are a winner you will be a loser. This takes place when the price of the birds in the match and the ties exceed the amount you receive as the purse. This is a part of pigeon shooting, and you can rest content with the honors you have won, for honors, 'tis said, is more

desirable than great riches. There is a peculiar charm about pigeon shooting; it captivates nearly every one who participates in it. To-day we kill ten straight, and rejoice because of it; to-morrow we kill seven out of ten. Now we are dissatisfied, and try again. And so it goes; success keys us up to duplicate our successes. Non-success spurs us to do what we have heretofore done, and so, between our success and non-success, we are never satisfied, and never cease pigeon shooting until our pocket-books tell us of our extravagances. The right of challenge is a privilege accorded every participant in a pigeon match. There is a delicacy one feels about exercising this right, for no one wants to have the reputation of being a "chronic kicker." In sweepstake shooting one should be careful about making challenges too often; at the same time, a shooter has the right to challenge, and every bird should be challenged when there is any doubt of its being killed, for oftentimes a bird which has fallen, seemingly dead, will revive and fly out of bounds. Where both barrels are permitted, the second barrel should always be used to kill the bird if the bird shows signs of life.

One of the best posted men in the United States on field sports is "Gaucho," Mr. Arthur W. DuBray. I take great pleasure in reproducing an article he wrote to *Forest and Stream*, entitled:

PIGEON SHOOTING — PAST AND PRESENT.

"Pigeon shooting as compared with many other out-door sports is of comparatively modern origin. Prior to 1850, the shooting of birds released from traps had never been gone into to any great extent, so that as compared

with football, cricket, and indeed most of the leading games indulged in by men and boys alike, pigeon shooting is only a recent pastime.

"Unfortunately for the lovers of this sport the impression has arisen with many, principally ladies, that it is decidedly cruel to shoot at a bird sprung from a trap, while some men aver it to be unsportsmanlike even to go into a pigeon match, declaring in support of their objection that a bird should be at freedom and allowed to take care of itself by eluding its pursuer by stealth, or else flying off before he is near enough to harm it; in other words, that nothing but field shooting, pure and simple, should be recognized.

"It is not to be denied that field shooting is on a much higher plane than pigeon shooting could ever reach. There is absolutely nothing sentimental in the mere killing of pigeons over trap; it is purely a test of skill, and was never intended to represent anything else. On the other hand, the man who stickles on the point of allowing game to baffle the sportsman by hiding or in any way making itself scarce, ought not, logically, to shoot over a dog, for the *raison d'être* of the latter is simply to find the game, so that when it is flushed his master may shoot at it. Now, field shooting without a dog is worse than Hamlet minus the ghost, for after all the very best dog is the one that finds the most game, or, in other words, the dog that allows the least number of birds to escape without being shot at. So if it is unsportsmanlike to shoot a bird confined in a trap, it is necessarily so to shoot one that has already been located by a dog, for nine times out of ten the gunner unaided would never have had the offer.

"The greatest backset trap shooting has ever had was when 'find, trap, and handle' matches came into vogue. The brutality of many of these contests was simply horrible; the most barbarous methods were used to accomplish certain damnable results, and no wonder that when fiends calling themselves men, sportsmen forsooth, disgraced humanity by torturing harmless birds in order to win a few paltry dollars or acquire a degree of fame (?), no wonder, I say, that the rest of mankind tabooed pigeon shooting as a whole, making all suffer alike as a penalty for the trickery of cruel black-legs bent on winning a stake or reputation regardless of the commonest laws of decency. These 'find, trap, and handle' matches were in a great measure merely gambling schemes, wherein the handler performed a vastly greater part than those who actually did the shooting. In such affairs it was of uppermost importance to have at one's back a person well up in the most devilish arts, in order that he might at least keep abreast of the man trapping against one for his opponent. Two men engaged in a 'find, trap, and handle' match being of equal skill, it was always dollars to cents on the man's winning who had on his side the more skillful handler of pigeons — indeed the betting was governed very often solely on the handler, when it was once known who should handle against him — clearly proving that the shooting was quasi of secondary consideration, so much stress being laid upon the effect produced on the defenseless pigeon, after it once left the merciless hands of its brutal captor. No one could, from a demi-civilized standpoint, uphold such savage practices under the guise of sport, so naturally enough many becoming disgusted withdrew altogether, declaring it a brutal, degrading

pastime and censuring in no measured terms its advocates.

"Nowadays, fortunately, all such butchery of birds is removed. We now shoot at the best-flying pigeons we can procure; we shoot them from five ground traps, five yards apart, giving them a good long start, and if they are wounded with the first barrel the second generally gives the *coup de grace*, or else the trapper instantly kills the wounded bird, ending his suffering. So that as a matter of fact pigeons are much more humanely and carefully treated than poultry huddled up in coops, carried head down by the legs, bruised and banged about in a thousand ways, and eventually decapitated with a dull ax or saw-like knife at the hands of whoever has stomach enough to perform this delicate operation. Pigeons are now shipped in roomy coops, are well watched and fed, and on all first-class shooting grounds are given the best care, for non-flyers are a dead loss to the purveyor, *ergo*, as purely a matter of economy everything is done to insure their being in good health and well able to take care of themselves when once released from the traps.

"A great deal of discussion and condemnation has arisen from the shooter being allowed the use of both barrels when shooting at the trap. There can be nothing said against it from any rational standpoint; every one has the same privilege. In the event of a bird being merely wounded the humane shot at once kills it, if possible, with his second barrel. Many birds that would fly off and out of bounds, though badly wounded, are at once killed outright by the dextrous use of the ever ready second. In field shooting one always uses the second edition when

the first has not accomplished its purpose, and as it is well known that gunshot wounds are not painful until after a certain time after being received, it is quite clear that a wounded bird that is at once killed by the trapper on being gathered can not have suffered any more than had it been beheaded or killed in any other so-called legitimate method. Birds killed at the trap are invariably used as food, hence it is that they are well cared for, first to insure their being good, rapid flyers, and secondly, so that when dead they can readily be sold for the table. The cruelty, therefore, of pigeon shooting is purely imaginary, and not for a moment to be compared with that inflicted by men who habitually fire into flocks of game birds, killing a few and wounding many others that wander off to die a lingering death or become a prey of carnivorous birds or beasts. It was, or has been, a cruel sport, but when properly carried on there is absolutely nothing of that character about it. On some grounds, I admit, birds are allowed to suffer; wing-broken birds or birds shot so they can not fly off are permitted to limp around the traps or lie stretched on the ground, bleeding and crippled, writhing in their agony, but that is entirely due to want of management and can not in fairness be charged against the sport itself, such birds being actually detrimental to it, as they serve as decoys and materially interfere with the flight of all birds subsequently released.

"Let any one who considers pigeon shooting cruel go to John Watson's Park at Chicago, and then he will, he must, change his views. The same must be said of all the crack clubs of America, where thousands and thousands of pigeons are shot every year, and never a one is allowed

to suffer, unless indeed those that fly off wounded — against which wounded birds afield act as an offset.

"Another thing, men who habitually shoot pigeons are for the most part provided with the best guns and use the best and most expensive ammunition made. In these days of nitro powders the gathering of wounded birds, of yore an art by itself, has from disuse become almost obsolete. Now, one uses a well-choked duck gun loaded with a powder that, instead of producing a volume of smoke so dense as to be impenetrable, emits a thin vapor, transparent and fleeting, obscuring nothing from view, leaving the bird clearly visible, admitting thereby the instantaneous delivery of the second barrel. Aside from this, either because certain smokeless powders deliver the load more compactly and with greater force, fewer birds are sent off wounded than formerly; it is now generally a clean, sudden kill, resembling the impact of an electric shock, or else a clean miss altogether, though, of course, some birds must be wounded and will so continue to be so long as shooting at them exists in any form.

"It is to be regretted that men still continue to import pigeons long distances, generally by rail, when they come packed too solidly in crates, and where their feathers must perforce become soiled and stuck together to such an extent they can not fly. Such shooting is entirely devoid of sport. It is at such pigeons that long runs of kills are made, and it is in witnessing such insipid slaughter that men form erroneous ideas as to the possibilities of the sport. To charge the tameness of such shooting against the sport in general is parallel to comparing a game of base-ball as played by some small village club, on a ground ankle deep in mud, swimming in ice

water in winter, or chasing an antelope mounted on a worn-out city hack. And yet many men who have not the faintest idea of the pace and vim latent in a cooing pigeon, who have never seen one dart out from an end trap as though each wing was trying to overlap the bill in its anxiety to annihilate space, will complacently tell you that killing pigeons is easy, that you hold the gun where you please, that you are allowed two barrels, that it is always done in an open field, and to sum it up that the bird has no chance. All I can say to such is, let them try it — at Watson's in winter, with the wind at Lake Michigan; at Larchmont in a shifty breeze, or at any crack New York club — to say nothing of hundreds of places where good strong birds are trapped, and where the wind has a fair sweep at them. One single effort will dispel the illusion, for while it is easy enough to kill 70 or 80 per cent of one's pigeons, yet every 1 per cent after 85 is very hard to squeeze out, so hard indeed that but few men have the power of reaching beyond as a steady average.

"Pigeon shooting should always be done over two or more traps, extending at least twenty yards apart at the extremes. The strings that operate the traps should always be concealed. The traps should invariably be placed on a totally bare spot, clear and smooth, the King trap being the best, though a scoop trap makes very fair birds of only mediocre ones and scorchers of really good pigeons. The rise should never be less than thirty yards, while the boundary is about correct at fifty.

"In the matter of guns, assuming the twelve-gauge to be standard, a sixteen-bore ought to go in at least four yards instead of two; for no sixteen-gauge with an ounce

of shot can equal a correspondingly good twelve, even with the four-yard handicap in effect, with its second barrel. A thoroughly good sixteen-bore is absolutely certain, when properly loaded and held, up to say twenty yards rise with the first barrel; but on thunderbolts that vanish through the air, leaving naught for the wistful eye to gaze on but a dim, fleeting meteor frantically endeavoring to overtake its own shadow, a sixteen-gauge can't be compared to a twelve. It is not in the gun nor in the load, though skillful, steady handling will accomplish great things. On this subject I may be pardoned for speaking feelingly, as experience is avowedly the best teacher.

"Overloading should be avoided, especially in long matches. Great scores have been made with only three drams to, say, forty-six grains of E. C. and 1⅛ ounces of shot. Per contra, J. L. Brewer, perhaps the greatest pigeon-shot to-day, uses tremendous charges of powder, going up to fifty grains or more. Physically a very powerful man, constitutionally rugged, of a nervous organization that little feels, such a man can lead a pace on loads that few could, with impunity, follow. No amount of loading can counteract bad shooting, whereas the very best shot and holder may soon become totally disabled by overcharging his gun. It is erroneous to suppose that anything beyond the rational limit is advantageous. The speed of a charge of shot may be increased up to a certain point by adding to the powder; after that its pace is gained at the expense of the regularity of its delivery, but above all, the jarring and bouncing of an overloaded gun will make flinching a certainty, will generally scatter the charge and may strain the very best gun. The writer

has seen men using but 2¾ drams of E. C. kill bird after bird stone dead. He himself has made good scores with a sixteen-gauge, using only 2¼ drams of same kind of powder. The crack pigeon-gun maker of London, a man whose name is known the world over as having always advocated large charges of black powder, advises his customers to keep under the forty-seven grains limit. That, coming from such high authority, ought to convince any one of the futility of attempting to obliterate time and space by using such tremendous charges that no gun can long withstand them. All nitro-powders are greatly influenced by the kind and quantity of wadding used; forty-two grains well wadded will actually shoot much harder than forty-eight with insufficient wads. So, also, does the crimp play a very important part. Velocity or penetration (synonymous terms) to the whole charge is more certainly obtained, with regularity of shooting, by a rational load well wadded and crimped than by more powder not so well confined and held down.

"Close observation of this very interesting sport teaches these things — isolated cases to the contrary proving nothing. A small percentage of men can withstand continued severe punishment without its interfering with their entire nervous system — the worst that happens to them is a bruised face or shoulder — but the great majority bruise themselves less because they hug their guns less and less as the shooting progresses, dodge away from it in fact, and score less in consequence. A gun with a very crooked stock, when overloaded will kick back and hurt the shoulder; one with a straighter stock in addition to this reaches up for the jaw or cheek-bones and gives these such a sudden jolt at every discharge that self-pres-

ervation soon asserts itself, and instead of facing the stock, the only way to properly align the gun, the head is bobbing away from it and the muzzle is not pointing where the shooter is looking. Result, pigeon moves off gracefully and serenely, and a goose egg adorns the score. The mania for overloading is very natural, especially among those who have for many years used coarse, slow-burning black powder. Of this kind four drams could be used in an eight-pound twelve-bore, and then but little recoil was felt. Indeed only a portion of the load was consumed, whereas now with nitro-powder a four-dram charge is tremendous, out of all reason, if properly wadded and shell crimped as it should be. Fortunately, we are becoming educated to the new powders, and in proportion to our knowledge generally so do we decrease our charges.

"It needs no vivid imagination to discover that in days when spring traps were in vogue and fated pigeons were tossed in the air to be instantly snapped out of existence by men using scattering guns — shotted to the last notch — there was not much sport in it, for then, be the bird never so good, the impetus given him by the trap spring precluded all possibility of his taking flight until he had overcome the impetus of the powerful flip. In the meantime, while dazed and completely bewildered, a whirlwind of small shot came pelting at him, so large in scope and dense in volume that there was no evading it. So his aspirations were cut short, and riddled, he falls to the ground without even having spread his wings.

"Nor could the twenty-one yards rise plunge trap be considered much better form, for here also, although to a lesser degree, the birds were pitched out of the trap and

given an unnatural flight, being generally killed the moment the trap was sprung. Both styles were bad alike. They balked nature in the endeavor to accelerate motion, and neither style had a vestige of semblance to field shooting. The traps were always known ones, which is all wrong. The rise was short, though quite far enough for the guns then used; but above all there was always a suspicion in the minds of some that they were getting a plentiful supply of harder birds than their opponents. And although this very frequently was a matter of luck, still it will always obtain where known traps govern.

"Now, with good, lively birds, traps farther away and many yards apart, no one can be favored when shooting under standard rules; birds, if in condition, can not be 'extinguished' until after they have risen; it is wing shooting sure enough, and very different from popping at the Jack-in-the-box style contemporaneous with muzzle loader guns, whose shooting qualities, albeit perfect inside of twenty-five or thirty yards, have only the halo of loving reminiscence of our boyhood days to recommend them."

The rules of speed of birds and velocity of projectiles, heretofore enumerated in this book, are applicable in pigeon shooting. To what extent, the pigeon shooter must note according to the flight of the birds and the distances they are from him.

And there is another thing he must always bear in mind — that is, the effect the wind has on the charge of shot. Shot issues from the muzzle of a gun with the compactness of a ball. The resistance of the air speedily produces a separation of the mass, then the separate pellets

are hurled, subject to atmospheric conditions, causing the pellets to spread according to the rate the wind is blowing, and, strange as it may seem, nevertheless it is true, that in a gale of wind one should hold as far ahead of a pigeon buffeting against a wind as he should hold ahead of a bird going with the wind. E. D. Fulford is one of the best pigeon-shots in the world, and yet the author saw him miss a pigeon with both barrels which was not over twenty-eight yards from him, and the bird was perfectly immovable, fighting to fly against the wind, which was blowing fully fifty miles an hour. The miss was an error of judgment, for he should have held two feet ahead of the pigeon, allowing for the drifting of the shot, instead of holding a few inches ahead as he did. Fulford's error was shown when, afterward, birds were fired at on the ground with the second barrel, and an allowance of fully two feet had to be made at the distance of twenty-eight to thirty yards in order to hit the stationary bird. No bird can fly as fast as shot will drift, for shot retains to a certain extent its initial velocity, and also gets the full force of the wind. The pigeon shooter should bear this in mind, and in long shots he will find that in a gale of wind he will have to lead a bird going against a gale of wind more than he will one going with the wind. If the reader has not had a practical demonstration of this, let him shoot at a target across wind and note the distance shot will drift at forty yards. After the shot has reached a distance of twenty yards from the muzzle of the gun, it will curve like a base-ball thrown by a professional pitcher, and scattering pellets will be blown from eight to twenty feet one side of the main body of the charge.

America easily leads the world in the skill of her trap shooters, and there is no question but that from ten to fifteen pigeon shooters can be selected in this country who can defeat an equal number selected from any and all parts of the world.

A writer in a prominent sportsmen's journal recently wrote:

"It is rather surprising that with the number of first-class professional shots in this country so few contests are held between them. For two years Elliott, Class, Fulford, and Brewer have done more match-shooting than all the rest together. Looking over two years' records of these experts it is seen that Elliott shot fifteen matches, Class seventeen, Fulford fifteen, and Brewer eight. The record also shows that Brewer, who shot at 733 birds, leads the list with an average of 94.270; then comes Class, who shot at 1,600 birds, and averaged 92.973; Elliott shot at 1,425 birds, getting an average of 92.603, while Fulford, who shot at 1,403 birds, averaged 90.092. Here is a quartette who in two years shot an aggregate of 5,161 birds and killed 4,763, an average of 92.286 per cent, and we wonder if any four men in the trap-shooting ranks could excel the showing. It is extremely doubtful, and we also doubt the ability of any four men on either side of the Atlantic to defeat the above four in an up and up match at 100 or more live birds each."

CHAPTER XVI.

INANIMATE TARGET SHOOTING.

THERE has been no one thing which has done so much toward making shooting popular as the introduction of inanimate targets. Pigeon shooting is expensive, birds are hard to get, and often when sportsmen are desirous of shooting, they can not obtain them. Besides, pigeons should not be shot in the summer season, for at that time they are lazy and usually indifferent flyers. The ingenuity of those who catered to sportsmen was sorely taxed for years in trying to devise some object which could be thrown or set in flight which would do as a substitute for live pigeons. Nothing will act as a complete substitute, but the targets now in use are giving complete satisfaction, and, as many sportsmen are opposed to live bird trap-shooting, they find most delightful sport and recreation in smashing these targets. Among the first inanimate targets, was the Gyro pigeon; it was so constructed that arms would revolve working in imitation of pigeon wings. It was thrown from a trap and sailed gracefully away, but there was a certainty in its line of flight, and an uncertainty of its flying and of its falling when hit, that soon did away with its use. The Bogardus glass ball came next, and, being apparently successful in supplying an existing demand, the sales of them were enormous. Imitations of course sprung up, and strange to say, without very little, if any, improvement. Shooters

in those days, as now, liked to see the feathers fly, so some thoughtful person filled glass balls with feathers, and when they were broken, feathers drifted in the air, and permitted one's imagination to suppose that he was shooting ducks, quail, or grouse. The imagination was somewhat strained, however, the feathers usually looking as if some old hen had been sacrificed for the benefit of those who continually ask for, and seldom get, spring chickens. Glass balls did not prove a lasting success, as they could not be depended on for breaking qualities, and I remember distinctly of the chagrin I experienced one time when my friends intimated that I could not break seven out of ten. As I had been averaging nine out of ten, and even a fraction more, I ridiculed their proposition. They were right, however, for I only broke three. They had selected some glass balls for me to shoot at that nothing but No. 6 chilled shot would have broken.

The Bogardus trap was the one in general use. It had a cup for the ball, a flat spring similar to a buggy spring, and the inertia of the ball was obtained when the spring struck a rubber obstruction. The Mole revolving trap was the best in those days, although the Card was very similar. These revolving traps threw glass balls at unknown angles and made shooting very difficult, as a percentage of the balls were incomers or quartering incomers. The secret of glass-ball shooting was to catch the balls just when their momentum had ceased and they were ready to fall. Clay pigeons were next on the market; they were invented by Ligowsky, and were really the model after which the targets of to-day are made. The first ones had tongues of heavy paper secured to them; these paper tongues were inserted between two springs which released them when the lever or arm attained the proper sweep. The main objection to the working of the targets was this tongue, for it either stuck or was easily broken off. In

order to introduce clay pigeons throughout the country, a series of twenty-five matches were arranged between Captain Bogardus and Doctor Carver at 100 clay pigeons at each match; 2,227 were broken by Doctor Carver, and 2,103 by Captain Bogardus, at eighteen yards rise. Doctor Carver made two scores of 100 each without a miss, and won nineteen matches, tied in three, and lost three. The use of both barrels were permitted, so the scores were not equal to those now being made with the use of one barrel, for the winner's average was less than ninety. The trip of Captain Bogardus and Doctor Carver did great good toward the introduction of targets, and clubs were organized throughout America for target shooting. There are many manufacturers of targets now, traps have been improved, and it seems as if almost perfection has been reached. Glass balls have gone out of use. They were always dangerous, as the broken glass often inflicted injury not only to trappers, but to stock as well.

There is a secret in the hitting of targets, the same as there is in all shooting. The quicker the aim, the more certain one will be in hitting the targets; therefore the shooter should shoot quickly; never so quickly, however, as not to take aim, but there must be no dwelling on the aim. The shooter should stand in an easy position, with the left hand well extended along the barrel; should the target go straight away, the aim should be taken quickly and the gun pointed just above the target. When the gun is aligned, there should be no dwelling on the aim, but the trigger should be instantly pressed. The difficulty which arises to so many shooters consists, to an extent, in the dwelling on the aim, the shooter feeling an uncertainty in the correctness of his aim. That

uncertainty is responsible for many misses, for the trying to catch the second aim usually plays the mischief, and one should learn to fire promptly when the aim is thought to be correct, not absolutely correct, for were one skillful to catch aim which was perfect, then a rifle would accomplish the purpose. The proper way is, to hold as nearly correct as one can, trying for a perfect aim, and if one has pointed his gun within a few inches, then the spread of the shot should accomplish the hitting of the object aimed at. The pattern of the gun must be such that it will be impossible for the target to escape by reason of the spreading of the shot. If one is a quick shot, then a modified choke will be the best; if a shooter is inclined to be slow, then a full choked bore is the gun. Targets thrown at angles must be led from a few inches to a few feet, depending on their velocity, angles, and the distance they are from the shooter. Many wonderful scores have been made at targets, Mr. Rolla O.

Heikes shooting in the best form for the past year. Annie Oakley recently broke the record for quick shooting, she having, on the grounds on Washington Avenue, Nutley, broken 100 targets in six minutes and thirty-two seconds, breaking 100 out of 111 shot at.

The beginner in target shooting will be rattled by the way targets are thrown, for before he is ready to shoot, and immediately after he says pull, a dark streak will glide from him, and the target will be forty or fifty yards from him. It is always best for the beginner to take easy shots at first; the trap should be set so as to not throw them far, and the target be thrown rather high. After one has learned to hit the targets which are thus thrown, the line of flight may be lowered and the velocity of the target accelerated. It is a great mistake for the beginner to commence with hard shots. He would not think of attempting a difficult feat of skill in anything else without first having tried the easy part of it. This trying the hardest shots from the beginning is like refraining from trying the simple carom in billiards and attempting a massé, or like trying to swim on one's back before beginning in the boy's style of "dog fashion." Every shooter had to learn to creep before he could walk; so, too, he must start in an easy and simple manner, learning to make the easy before he can expect to accomplish the difficult shots.

CHAPTER XVII.

HOW BLACK AND NITRO POWDERS ARE MADE.

THE one who is interested in explosives can learn about the manufacture of black powder from encyclopedias and books which are obtainable. But with nitro-powders it is different, and the constituent parts of the latter, and the process of manufacturing them, are secrets to all but those who have had experience in their production. The component parts of black powder are charcoal, sulphur, and nitre, and extreme care is necessary in the selection of those ingredients, for the purer they are the better will be the gunpowder. The principal impurity of nitre, or saltpeter, is chloride of sodium — common salt — which, in consequence of its tendency to absorb moisture from the atmosphere, would have a very injurious action on gunpowder by weakening its power. The sulphur may be purified either by fusion (when the heavier impurities sink, and the lighter ones may be removed by skimming) or by distillation. The preparation of charcoal is an important point. It should be light and porous, should yield a very little amount of ash, especially of carbonate of potash and other deliquescent salts, and should contain very little moisture. The woods yielding the best charcoal for gunpowder are black alder, poplar, spindle-tree, willow, and dogwood. A reference to the encyclopedia will show that gunpowder was used fully

350 years before Christ, but not as a destructive element. It was discovered in India first. It was known in China as early as A. D. 85, in Arabia in 1249, and in England in 1269, and was first used in a cannon in 1312. The black powder first introduced into America apparently satisfied the longings for proper explosives. This satisfaction was based on the fact that the users of gunpowder were accustomed to such vile stuff that they did not know that better could be obtained. A revolution in the manufacture of gunpowder was made in 1802, when a man who was thoroughly conversant with gunpowder settled in America. That man was Eluthere Irenéé du Pont de Nemours, who was born in Paris on the 24th day of June, 1771. His tastes turned early to scientific pursuits, and his father's friend, Larvisier, whom Turgot had made superintendent of the government mills (Regie royale des pondres et saltpitres) offered to take him in charge and secure his reversion to that important post. This led to his going to the royal mills at Essonne to acquire a practical knowledge of gunpowder, where he remained until the outbreak of the French revolution. The revolution caused the imprisonment of Irenéé du Pont and his father on three different occasions, and they were marked for execution. They succeeded in escaping, and the father was secreted by the astronomer Lalando in the Paris Observatory, and the son hid at Essonne. On Saturday, January 1, 1779, Irenéé du Pont, with his father and elder brother, landed at Newport, R. I. Shortly afterward Irenéé du Pont's attention was attracted to the poor quality of gunpowder which was being manufactured in America, and he decided to engage in its production. In 1801 he went to

Traner, procured machinery and plans, and in 1802 he bought a tract of land on the Brandywine River, near Wilmington, Del., and arrived at the Eleutherian Mills with his family on July 19, 1802.

He established powder mills at once, and from that beginning the largest and most successful powder mills in the world have grown up. For ninety-two consecutive years the Du Ponts have manufactured gunpowder at Wilmington, Del., their products always being classed among the best. J. D. Dougall, an English authority on guns and explosives, wrote an able article, which was published in the *United Service Magazine*, printed in England, September, 1893, on the subject of "Smokeless Powder." Mr. Dougall said:

"When the musket supplanted the cross-bow, and the bullet the arrow, the change was of a revolutionary character. The propelling bowstring gave no report, the visible arrow was succeeded by the invisible bullet. The ancient battlefield must have been comparatively a silent one, more for the eye than the ear, and the human voice the loudest among the sounds of conflict. The change therefore to unseen projectiles, to the rattle of musketry and the roar of the cannon, must have been regarded by our ancestors with some awe, and an opening up of possibilities in warfare and influences on humanity which time alone will disclose. For some centuries the world has been content with gunpowder as it was, and the change has again come when the eye has again asserted its old position, and the sound of explosion has been diminished, although not removed. The purpose of smokeless powder is to let the eye see, whether it be that of the general watching the movements of the thousands

before him, or of the skirmisher relying upon the keenness of his sight so as to throw a bullet with accuracy to the long range his modern weapon is capable of. Under these conditions a deaf soldier could shoot, but a short-sighted one would be of little service.

"Xenophon tells us that in the retreat of the ten thousand, the Greek slingers were able to beat off the attacks of the pursuing Persians because the slings of the latter had not the range of those of the Greeks, who threw leaden balls, whereas the Persians were only provided with light stones.

"The masterly inactivity of the Roman general who hovered at a respectable distance from Hannibal, was nothing more than keeping out of range; and if the Roman could have also hit Hannibal while Hannibal could not reply, one could readily conclude on whose side the victory would have been.

"At Waterloo, the musket had no greater or more effective range than the cross-bow of old, and since 1815 the efforts of invention have been to lengthen the flight of the projectile, with the object, perhaps a selfish one, of enabling you to strike your enemy at a distance at which you hope he might not be able to strike you. We all know the story of the little Irishman in the duel, who objected to the long reach of his six-foot-three opponent, and who insisted that the length of the rapiers should be such as to equalize the discrepancy, he with a long one, his foe with a shorter one. In the hope, therefore, that he might be nearer his enemy than the latter was to him, we have an instance of the appreciation of long range.

"The advantages of a flat trajectory are great, but they

must not be overrated. We have often had described to us the decimating effects anticipated by the flight of bullets over 400 or 500 yards, but what if I am picked off at a greater distance before I have time to get my flat trajectory in play?

"Believing, therefore, in the importance of long range, and that it will be the all-prominent feature in future campaigns, we may ask, what has brought it about, and how is it obtained?

"It has been brought about by the natural desire, as touched upon above, to overreach your opponent. It has been obtained by the combination of smokeless powder as a propellant, and the reduction of the bore of the weapon, converting the bullet into a bolt.

"This transition into a new gunpowder is not a matter of yesterday, nor has this country been backward. In the year 1868, at the Royal United Service Institution, the late Mr. J. D. Dougall (the writer's father) gave a lecture on the nitro-compound introduced by him, which was the first practical step in the movement that has now spread over Europe.

"For many years the only successful sporting powders of the 'smokeless' class have been of British make. We are a fighting, not a military, nation, and our national abilities in the production of war material have no prominence until need arises.

"A smokeless powder is influenced by the strength of the cap and the tightness of the crimping of the end of the case on to the bullet. There is, therefore, behind it and before it two things which it has to reckon with. If an excessively tight crimp is put on, the bullet has greater difficulty in starting on its journey, and the pow-

der, becoming impatient, exercises greater force than is required. If a too strong ignition acts on the powder, the combustion is too rapid for the weight in front. The purpose of a powder is to propel a bullet with accuracy. If it does this — its work — the question of the pressure it develops is of no consequence so long as the barrel or the breech mechanism is not injuriously affected. Propulsion can not be got without pressure. Too much has been made of low pressures as a test of the quality of powder. In my experience such powders do not give the steadiest shooting, and are very susceptible to the cap and the crimp, giving at times the abnormal pressure which is dangerous. It is the steady-going, average pressure powder that gives the best diagram and is the safest. Nor do I believe that a correct mode of taking pressures as yet exists; and I also am of opinion that the system now used of a movable base at the breech of the cartridge is acted upon in different ways by different powders, registering untrue pressures.

"The greater the resistance, whether from the crimp, the weight of the bullet, or the nature of rifling, the slower should be the combustion. The S.S. shot-gun powder is quicker than the S.V. revolver powder; the S.K. rook-rifle powder is slower than the S.V.; the S.R. Martini-Henry powder slower than the S.K.; and the 'Rifleite' ·303 powder still slower than the S.R. If I load a twelve-bore cartridge with 'Rifleite,' it will hardly propel the ounce and an eighth of shot out of the gun. If I put the same charge behind a ·303 bullet in the Lee-Metford, I can send that bullet two miles. If I put the quick-burning S.S. shot-gun powder behind the ·303 bullet, I damage the rifle.

"Thus the use of smokeless powder is a balancing of propulsive power against resistance, a compromise between the two. If I take away the resistance — that is, if I put no bullet in at all — the powder has no force, and when fired gives practically no sound.

"Smokeless powder is one of the 'resources' which have come into the hand of 'civilization.' When the great continent of Africa is being absorbed and walked over, and the leading nations are forcing themselves and their commerce among more backward peoples, the strong, with these more efficient weapons, have become stronger, and barbarism, wherever it stands in the way, must, unless possessing equal powers of resistance, in the end be overcome. Smokeless powder, therefore, if bringing these things about, is to be regarded as having a beneficial influence on human interests."

Mr. Dougall's article is very interesting, but the author does not agree with him when he says, "For many years the only successful sporting powders of the smokeless class have been of British make." Admitting their good qualities, they are no better than those powders manufactured in the United States, where equally skillful workmen cater to critical American sportsmen and the varied climate we have. The E. C. Powder Company kindly gave me valuable information as to the manufacture of nitro-powder, and as the manner of producing it is much the same throughout the world, the sportsman and interested reader will find the information both instructive and valuable:

"The basis of the powder is a special grade of gun-cotton, a chemical compound which years of careful and patient research has proved to give that property to the

powder, viz., even and regular shooting, combined with the lowest possible pressure in the gun. While we used to say of black powder, the shooting of the powder depends on the quality of the charcoal, so now we say the quality of a nitro-powder depends on the quality of gun-cotton used. The manufacture of gun-cotton has been actively pursued since the commencement of 1872. The following is a brief outline of the process: Carding the cotton — the cotton purification from oil and fatty matters by an alkali treatment, and removal of other extraneous substances; pieces of string and rags are passed through a carding machine for the purpose of opening up the material, and subsequently through a cutlery machine to reduce it to a suitable condition for ready immersion in the converting acid.

"The cotton is then very carefully dried by spreading it out in a large oven-like room, fitted with steam pipes and hot-air blowers, great care being taken to obtain a very even temperature, and all moisture and cooling draughts being carefully excluded. The cotton in this way is rapidly robbed of its moisture, and when completely dried is placed in air-tight boxes and carefully covered from the atmosphere. After standing in there till quite cold it is weighed out in convenient quantities and carried by a boy to the dripping vessels. These vessels consist of large cast-iron tanks, containing acids in the proper preparation to convert the whole of the raw cotton into the explosive gun-cotton. This takes place after the cotton or cellulose has been in the acid about twenty to forty-eight hours, a chemical test being made when the operation is considered complete. The converted cotton or nitro cellulose is then very carefully

freed from acids by whirling it in a centrifugal or aci-dro extractor, and afterward washed from every trace of free acid by carefully laying it in large vats, constructed for the purpose, in which the explosive cotton is kept at a continuous boil for eight or ten days. The purified and converted cotton is then taken into a large room, where are arranged an ingenious combination of machines for grinding the long cotton and reducing it to a pulp of great fineness, suitable for the manufacture of nitro-powder. This process has the effect of producing absolute evenness in the powder, making a compound in which any sample represents the quality of the whole batch. The nitro-cotton, thus being refined and pulped, is stirred in large vats, capable of holding five tons each, and is now ready to be worked up into nitro-powder. For this purpose the material is transferred into a large incorporating room, where it meets with the other ingredients which go to make this nitro-powder, and is thoroughly mixed in a very large incorporating machine, consisting of heavy cast-iron rollers revolving in large pans; thus under enormous pressure and continuous churning the powder is carefully incorporated until every grain contains its proper share of each constituent. The powder now follows on to the granulating and hardening process, a series of complicated machines in which the powder is rubbed and chopped into little grains, rounded off, sized, and hardened, from which process it is ready for the drying houses. These are long buildings, two in number, situated right away from the main factory, and placed in an isolated position. These houses contain new and practical devices for the safe and quick drying of the powder by means of low-pressure steam. From this last

operation the powder emerges in a complete and desiccated condition, and is ready after sifting and blinding for the packing-house, and afterward the market."

Two new brands of nitro or smokeless powders have recently been placed on the market in America. They are the hard-grained Schultze and the Du Pont smokeless. They both possess a hardness of grain which permits their being loaded like black powder, but the sportsman should always bear in mind that three things are essential to bring out the force of nitro powders. First, a strong, or what is known as a No. 3 primer; second, thick wadding over the powder; and third, a crimp fully one-quarter of an inch in the shell.

The following table will prove valuable, supplying information as to the number of grains to the dram in nitro-powders.

BLACK POWDER.	Am. Wood 12 Ga. Trap.	Schultze	E. C.	Du Pont Smokeless.
1 dram measure (F. F. G. Hazard) equals	11 grs	12 grs	13 grs	12 grs.
1¼ " " " "	14 "	15 "	16 "	15 "
1½ " " " "	17 "	18 "	19 "	18 "
1¾ " " " "	20 "	21 "	22 "	21 "
2 " " " "	23 "	25 "	26 "	25 "
2¼ " " " "	26 "	28 "	29 "	28 "
2½ " " " "	29 "	31 "	32 "	31 "
2¾ " " " "	31 "	34 "	35 "	34 "
3 " " " "	34 "	38 "	38 "	38 "
3¼ " " " "	37 "	41 "	41 "	41 "
3½ " " " "	40 "	44 "	44 "	44 "
3¾ " " " "	43 "	47 "	47 "	47 "
4 " " " "	46 "	50 "	51 "	50 "
4¼ " " " "	49 "	54 "	54 "	54 "
4½ " " " "	52 "	57 "	57 "	57 "
4¾ " " " "	55 "	60 "	60 "	60 "
5 " " " "	58 "	63 "	64 "	63 "

CHAPTER XVIII.

TO MAKE A LOAD SCATTER.

One of the greatest troubles that is presented to the sportsman, is to know how to load a full choke gun to make it scatter, for every one who has tried one knows that a full choke gun in brush shooting is almost worthless, and, as is often the case, the sportsman can afford to own but one gun, he is at a loss as to how to load it for shooting in the brush or when birds arise close to him. Making a choke bore gun scatter can be accomplished by a division of the shot-load. After the powder has been placed in the shell and wadded as desired, divide the shot-charge by putting in one-half, then a card wad, then the remainder of the shot with a card wad on top, when the shell should be crimped properly. This will make a full choke shoot about like a modified. Should the sportsman desire to have his load scatter still more, he can make it do so by dividing the shot into three compartments, wadding with card wads between the divisions. This is a better way than to place thin wads on the powder and thick ones on the shot; by doing the latter it will decrease the efficacy of the load. The load, when loaded to scatter, will have proper penetration from thirty to thirty-five yards, sufficient for quail or woodcock shooting.

SHOOTING SOLID BALLS FROM SHOT-GUNS.

The question often arises, whether or not it is safe to shoot solid balls from shot-guns which are full choked.

It seems to be settled that it may be done, provided the ball chambers with a soft patch in the muzzle. In a letter to the *American Field*, Mr. T. G. Bennett, president of the Winchester Repeating Arms Company, writing with reference to using solid balls in shot-guns, said:

"A ball which will chamber, with a good patch, in a twelve-gauge shell, or in a ten-gauge shell, may be used in either gun respectively (meaning choke bored). Our shot-guns are nearly a true cylinder up to the choke, but not quite. They taper from the breech forward. The ball should be of such a size as to pass freely through the choke when accompanied by the patch with which it is surrounded. There should be good wadding behind the ball to prevent the escape of gas along the side. The choke-bore gun will shoot better than the cylinder-bore. A true cylinder-bore gun makes a very wild pattern as compared with any of the properly choke-bored guns. We recommend you to shoot in your gun (a choke-bored Winchester ten-gauge) a lead bullet which will pass freely through the muzzle when patched with a good heavy cloth patch. You can use plenty of wadding below the bullet. The patch will hold the bullet in place in the shell. You will not get good shooting with this — that is, you probably can not do better than to group five out of ten shots on an eight-inch spot at fifty yards. If the bullet is up to the size of the choke, or jams in the choke when covered with a wad, you will probably expand the gun at the muzzle enough to spoil it for shot shooting. However, there should be a wad over the ball — a light one — to better hold it in. The heavier the wad over the ball the worse the shooting will be.

"For the shooting in question we should not advise anything more than the ordinary sights. A man can hold as close as the gun will shoot for short distances, and surely it would not be advisable to attempt to use it with round ball beyond fifty or sixty yards. The thick patch is for the sake of centering the bullet in the shell; also to keep it from balloting in the barrel and present it as nearly as possible truly central with the line of the barrel."

AMERICAN SHOT TO OUNCE.

TATHAM & BROS., NEW YORK.			ST. LOUIS SHOT TOWER COMPANY.		RAYMOND LEAD CO., CHICAGO.		
Diameter in Inches.	Size.	Pellets in Ounce.	Size.	Pellets in Ounce.	Diameter in Inches.	Size.	Pellets in Ounce.
23/100	FF	24	OOO	33	23/100	OOOO	22
22/100	F	27	OO	39	22/100	OOO	27
21/100	TT	31	O	46	21/100	OO	33
20/100	T	36	BBB	51	20/100	O	38
19/100	BBB	42	BB	60	19/100	BBB	46
18/100	BB	50	B	71	18/100	BB	53
17/100	B	59	1	90	17/100	B	62
16/100	1	71	2	100	16/100	1	75
15/100	2	86	3	118	15/100	2	92
14/100	3	106	4	159	14/100	3	118
13/100	4	132	5	237	13/100	4	146
12/100	5	168	6	299	12/100	5	172
11/100	6	218	7	385	11/100	6	216
10/100	7	291	8	509	10/100	7	323
9/100	8	399	9	700	9/100	8	434
8/100	9	568	10	1103	8/100	9	596
7/100	10	848			7/100	10	854
6/100	11	1346			6/100	11	1414
5/100	12	2326			5/100	12	2400

Buck-shot may be loaded by pushing a wad from the breech to the smallest diameter of the muzzle, then drop in such size buck-shot as will chamber. Place the proper number in the shell over the powder and fill the aper-

tures between the buck-shot with very small shot, No. 10s or 12s — 8s or 9s may be used if preferred — others use bone dust to fill between the layers, but small shot will answer the purpose.

ENGLISH SHOT TO OUNCE.

LANE & NESHAM, LONDON.		NEWCASTLE CHILLED SHOT COMPANY, GATESHEAD-ON-TYNE.	
Size.	Number of Pellets to the Ounce.	Size.	Number of Pellets to the Ounce.
AAAA	30	AAA	40
AAA	35 to 40	AA	48
AA	40	A	56
A	45	BBBB	56
BBB	50	BBB	64
BB	58	BB	76
B	75	B	88
1	80	1	104
2	112 to 120	2	122
3	135	3	140
4	175 to 180	4	172
5	218 to 225	5	218
6	278 to 290	6	270
7	340	6*	300
8	462	7	340
9	568	8	450
10	985	9	580
Dust.	1672	10	850
*SG	11	11	1040
*SSG	15	12	1250
*SSSG	17	Large Dust.	1700
*LG	5½	Small Dust.	2800
MG	9	SG	8
----	---------	SSG	11
------	--------	SSSG	14

*Walker Parker & Co., London, sizes.

CHAPTER XIX.

RULES FOR INANIMATE TARGET SHOOTING.

RULE 1—*Judges and Referee.*—Two judges and a referee, or a referee alone, shall be selected by the management, or the contestants, whose decisions shall be final.

RURE 2—*Duties of the Referee.*—The referee shall see that the traps are properly set at the beginning of the match and kept in order to the finish. He shall endeavor to make the targets conform to flight and direction indicated in Rule No. 7. He shall test any trap upon application of the shooter at any time by throwing a trial target therefrom. He may at any time, and must, when so requested by a contestant, select one or more cartridges from those of a shooter at the score, and publicly test the same for proper loading. If the cartridge or cartridges are found to be improperly loaded, the shooter shall suffer the penalty as provided for in Rule No. 11.

RULE 3—*Scorer.*—A scorer shall be appointed, by the management, whose score shall be the official one. All scoring shall be done with ink or indelible pencil. The scoring of a lost target shall be indicated by a "o" and a broken target by the figure "1."

RULE 4—*Puller.*—A puller, or pullers, shall be appointed by the management, whose duty it shall be to see that the trap or traps shall be instantly sprung when the shooter calls "Pull," and shall be placed in such a position that the shooter will have no means of knowing

by his actions which trap is to be pulled. In single target shooting he shall pull the traps as decided by a trap-pulling indicator, or other means that may have been provided by the management, so that the shooter will have no means of knowing which trap the target is to be thrown from.

RULE 5—*Pulling the Traps.*—Section 1. Traps may be pulled in regular order from 1 to 3, or 1 to 5, or vice versa, if so decided by the management.

Sec. 2. If the shooting is from traps to be pulled in regular order, the shooter may refuse the target from the trap not so pulled; but if he shoots, the result must be scored.

Sec. 3. If the trap is sprung before, or at any noticeable interval after the shooter calls "Pull," he can accept or refuse the target; but if he shoots, the result must be scored.

Sec. 4. If the puller, or pullers, do not pull in accordance to the indicator, or other means provided, they shall be removed and others substituted.

RULE 6—*Arrangement of Traps.*—All matches shall be shot from three or five traps, set level, three or five yards apart, in the segment of a circle (see Diagrams A and B), or in a straight line (see Diagram C). When in a segment of a circle, the radius of the circle shall be eighteen yards. In all cases the shooter's position shall not be less from each trap than the rises provided for in Rule 7. The traps shall be numbered from 1 on the left to No. 3 or No. 5 on the right, consecutively, according to the number used, as shown in the diagram.

RULE 7—*Adjusting Traps.*—Section 1. All traps must be adjusted to throw the targets a distance not less than

forty yards, nor more than sixty yards. If any trap be found too weak to throw the required distance, a new trap or spring that will, must be substituted.

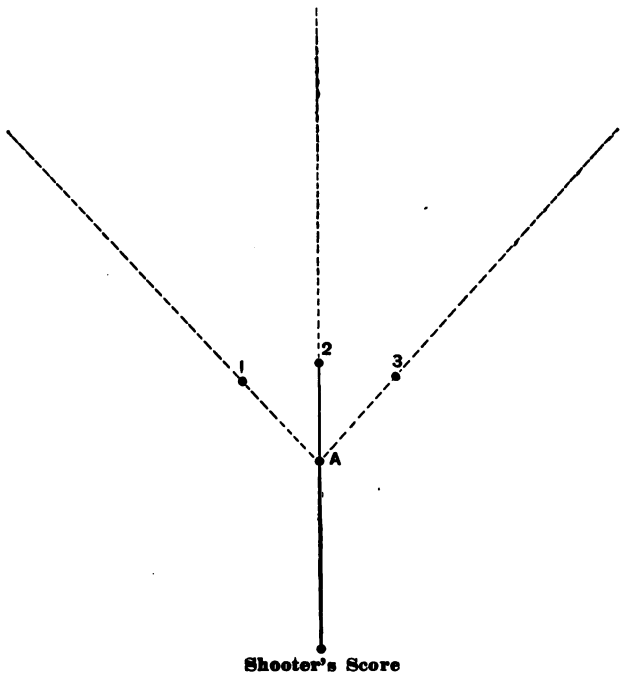


Diagram A. (See Rules 6 and 7.)

NOTE.—To get angles for birds thrown from traps 1 and 3, measure six yards from trap No. 2, on line to shooter's score, to point marked "A." Lines drawn from this point across traps 1 and 3 will give proper direction of flight.

Sec. 2. The lever or projecting arm of the trap shall be so adjusted that the elevation of the target in its flight, at a distance of ten yards from the trap, shall not be more

than twelve feet nor less than six feet, and the angles of flight shall be as follows:

If three traps are used (see Diagram A):

No. 1 trap shall be set to throw a left quartering target.

No. 2 trap shall be set to throw a straight-away target.

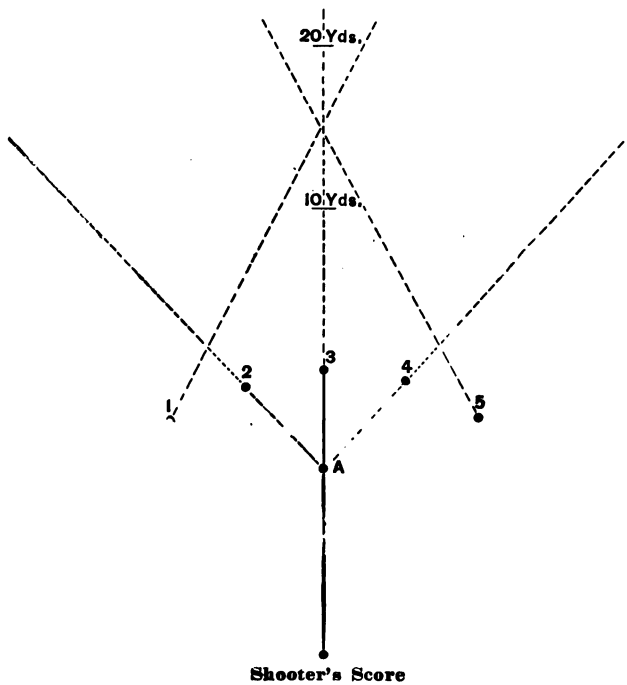


Diagram B. (See Rules 6 and 7.)

NOTE.—To get angles for birds thrown from traps 2 and 4, measure six yards from trap No. 3, on line to shooter's score, to point marked "A." Lines drawn from this point across traps 2 and 4 will give the proper direction of flight. The birds from traps 1 and 5 should cross the line of flight of the straight-away bird not more than twenty nor less than ten yards from trap No. 3.

No. 3 trap shall be set to throw a right quartering target.

If five traps are used (see Diagrams B and C):

No. 1 trap shall be set to throw a right quartering target.

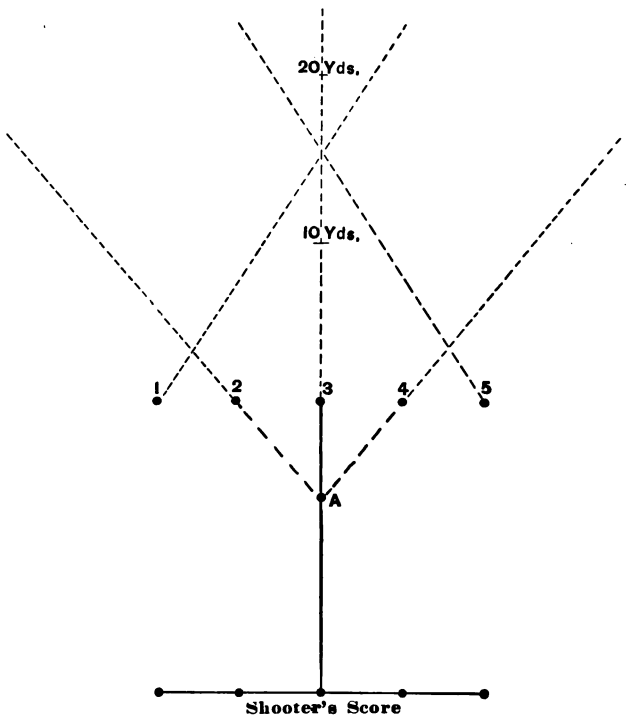


Diagram C. (See Rules 6 and 7.)

NOTE.—To get angles for birds thrown from traps 2 and 4, measure six yards from trap No. 3 on line to shooter's score, to point marked "A." Lines drawn from this point across traps 2 and 4 will give the proper direction of flight. The birds from traps 1 and 5 should cross the line of flight of the straight-away bird not more than twenty nor less than ten yards from trap No. 3.

No. 2 trap shall be set to throw a left quartering target.

No. 3 trap shall be set to throw a straight-away target.

No. 4 trap shall be set to throw a right quartering target.

No. 5 trap shall be set to throw a left quartering target.

Traps Nos. 1 and 5 shall be set to throw the targets so that the line of flight shall cross that of the straight-away target at a point not less than ten yards, nor more than twenty yards, from trap No. 3.

Sec. 3. After the traps are set for these angles, if the target for any reason shall take a different course it shall be considered a fair target, provided the trap has not been changed.

RULE 8 — *Screens.*— Either pits or screens, or both, may be used, but the screens must not be higher than is actually necessary to fully protect the trapper.

RULE 9 — *The Rise.*— In single-target shooting the rise shall be:

Eighteen yards for ten-bore guns.

Sixteen yards for twelve-bore guns.

Fourteen yards for fourteen and sixteen bore guns.

Thirteen yards for twenty-bore guns.

In double-target shooting the rise shall be:

Sixteen yards for ten-bore guns.

Fourteen yards for twelve-bore guns.

Twelve yards for fourteen and sixteen bore guns.

Eleven yards for twenty-bore guns.

All distances mentioned in these rules must be accurate measurement.

RULE 10 — *Caliber and Weight of Guns.*— No gun of larger caliber than ten-bore shall be used, and the weight of all guns shall be unlimited.

RULE 11 — *Loads.*— Charge of powder unlimited. Charge of shot not to exceed 1¼ ounces American Association, or Dixon's measure, struck. Any shooter using a larger quantity of shot shall forfeit his entrance money and rights in the match.

NOTE.—If, in the opinion of the management, with the unanimous consent of the contestants, a shooter has not wilfully violated this rule, his entrance money shall be returned to him.

RULE 12 — *Loading Guns.*— In single-target shooting only one barrel shall be loaded at a time, and the cartridge shall not be placed in the barrel until after the shooter has taken his position at the score.

In the double-target shooting both barrels shall be loaded at the score. Cartridges must be removed from the gun before leaving the score.

RULE 13 — *Position of Gun.*— Any the shooter may adopt.

RULE 14 — *Single-target Shooting.*— When the traps are set in the segment of a circle, each contestant shall shoot at three or more targets before leaving the score. If two targets are sprung at the same time and the contestant does not shoot, it shall be declared "No targets"; but if he shoots, the result must be scored.

RULE 15 — *Double Target Shooting.*— Both traps must be pulled simultaneously, and each contestant shall shoot at three or five pairs, consecutively, thrown as follows: If three traps are used, the first pair shall be thrown from 1 and 2, the second pair from 2 and 3, the third pair from 1 and 3, the fourth pair from 1 and 2, and the fifth pair from 2 and 3.

If five traps are used, the first pair shall be thrown from 2 and 3, the second pair from 3 and 4, the third pair

from 2 and 4, the fourth pair from 2 and 3, and the fifth pair from 3 and 4.

If only one target is thrown, it shall be declared "No targets."

If a target be lost for reasons stated in Rule 19, Sec. 1, it shall be declared "No targets." If one be a fair and the other an imperfect target, it shall be declared "No targets." But if the shooter accepts an imperfect target, or targets, the result must be scored.

If both targets are broken by one barrel, it shall be declared "No targets." If the shooter fires both barrels at one target intentionally, it shall be scored "Lost targets." But if the second barrel be discharged accidentally, it shall be "No targets."

RULE 16—*Rapid Firing System.*— When the traps are set in a straight line and the rapid firing system is to be used, there shall be a screen before each trap on which shall appear the number of the trap, from No. 1 on the left, and each shooter shall stand at score opposite the trap from which the target is to be thrown for him to shoot at. After he has shot at his first target he shall pass to the next score to the right, and so continue until he reaches the end of the score, when he shall return to the score opposite No. 1, and continue as before until his score is finished. If shooters are annoyed, or there is delay in shooting, by the smoke of previous shots, the traps may be pulled in reverse order, commencing with the trap on the right.

RULE 17—*Class Shooting.*—All shooting shall be class stooting, unless otherwise stated by the management.

RULE 18—*Broken Targets.*—A target to be scored "broken," must have a perceptible piece broken from it

while in the air. A "dusted" target is not a broken target. No target shall be retrieved for shot-marks.

If a target be broken by a trap, the shooter may claim another target, as provided for in Rule 19; but if he shoots, the result must be scored.

RULE 19—*Allowing Another Target.*— Section 1. The shooter shall be allowed another target for the following reasons:

A. For a target broken by the trap.

B. For any defect in the gun, or load, causing a miss-fire.

C. If the contestant is interfered with, or balked, or there is other similar reason why it should be done, the referee may allow another target.

Sec. 2. When the shooting is at known angles he shall have another target from the same trap; but if the shooting is at unknown angles he shall have another target from an unknown trap, to be decided by the indicator, except it be the last trap, when the shooter has the right to know which trap is to be sprung. In this case he shall have another target from the same trap.

NOTE.—When a shooter, in breaking his gun to put in the shells, fails to break it far enough to cock the gun, it is considered his own carelessness, and not sufficient excuse for the allowance of another target.

RULE 20—*Lost Targets.*—Targets shall be scored lost if the shooter fails to load, cock, adjust safety on gun, or pulls the wrong trigger.

RULE 21—*Tie Shooting.*— Section 1. All ties shall be shot off at the original distance, and as soon after the match as practicable, at the following number of birds:

Ties on Single Targets.— In single-target matches of twenty-five targets or less: On three traps, three targets;

five traps, five targets. In matches of twenty-six targets to fifty, inclusive: On three traps, six targets; five traps, ten targets. In matches of over fifty: On three traps, fifteen targets; five traps, twenty-five targets.

Ties on Double Targets.— In double target matches of ten pairs or less: On three traps, three pairs. In matches of more than ten pairs, five pairs, thrown from traps 1 and 3. If five traps are used, the same number shall be thrown in each case, from traps 2 and 4 (unless otherwise arranged by the management, and so stated or understood previous to the beginning of the match).

Sec. 2. If in a series of matches the result prove a tie, such tie shall be shot off at the original number of targets.

RULE 22—*Announcing the Score.*—Section 1. When two judges and a referee are serving, one of the judges shall announce the result of each shot distinctly, and it shall be called back by the scorer.

(The call for a broken target shall be "Broke," and the call for a missed target shall be "Lost.")

If the second judge disagrees with the decision of the judge calling, he shall announce it at once before another target is thrown, and the referee shall decide it. In case of another target being thrown before the referee's decision, the target so thrown shall be "No target."

Sec. 2. At the close of each shooter's score the result must be announced. If claimed to be wrong, the error, if any, must be corrected at once.

RULE 23—*Shooter at the Score.*— In all contests the shooter must be at the score within three minutes after his name is called to shoot, or he forfeits his rights in the match.

RULE 24—*Forbidden Shooting.*— No shooting will be permitted in the enclosure other than at the score; and in case there is no enclosure, no shooting within two hundred yards of the score, without the consent of the management.

RULES FOR LIVE BIRD SHOOTING.

RULE 1 — *Referee.*— A referee shall be appointed by the contestants, or management, whose decision shall be final.

RULE 2 — *Duties of Referee.*— The referee shall see that the traps are properly set at the beginning of the match, and kept in order to the finish, and that they are kept properly filled. He may at any time, and must, when so requested by a contestant, select one or more cartridges from those of a shooter at the score, and publicly test the same for proper loading. If the cartridge, or cartridges, are found to be improperly loaded, the shooter shall suffer the penalty as provided in Rule 15.

RULE 3 — *Scorer.*— A scorer shall be appointed by the contestants, or management, whose score shall be the official one. All scoring shall be done with ink or indelible pencil. The scoring of a lost bird shall be indicated by a "0," and of a dead bird by the figure "1."

RULE 4 — *Puller.*— A puller shall be appointed by the contestants, or management, and shall be placed at least six feet behind the shooter, and it shall be his duty to pull the traps evenly and fairly for each contestant, and instantly after the shooter calls "Pull." He must use a trap-pulling indicator, or other device that may be furnished by the management, so that the shooter will not

know which trap is to be pulled. All traps must be filled before the shooter calls "Pull."

If more than one bird is liberated, the shooter may call "No bird"; but if he shoots, the result must be scored. Should the puller not pull in accordance with the indicator, he should be removed and another puller substituted.

RULE 5 — *Arrangement of Traps.*— All matches shall be shot from five ground traps, placed five yards apart, in the segment of a circle. The radius of the circle shall be thirty yards from the shooter's score. The traps shall be numbered from No. 1 on the left to No. 5 on the right, consecutively (see Diagram D).

NOTE.— A ground trap is one that lies flat with the surface of the ground when open, and gives the bird its natural flight in starting.

RULE 6— *The Rise.*— The rise shall be:

Thirty yards for ten-bore guns.

Twenty-eight yards for twelve-bore guns.

Twenty-six yards for fourteen and sixteen bore guns.

Twenty-five yards for twenty-bore guns.

RULE 7 — *Boundary.*— The boundary for both single and double bird shooting shall be the segment of a fifty yards circle, and a dead line. The circle shall be drawn from a point ten yards beyond the center trap on a line from the shooter's score, and it shall terminate where it joins the dead line, which shall be drawn at a distance of thirty yards from the center trap, and at right angles with a line drawn from the shooter's score to the center trap (see Diagram D).

RULE 8 — *Birds Refusing to Fly.*— When a bird refuses to fly, such artificial means as have been provided by the management may be used to start it, by direction of the

referee. A bird hit with a missile shall be declared "No bird." The shooter may declare a bird refusing to fly when the trap is pulled, "No bird."

RULE 9 — *Gathering Birds.*— A bird to be scored dead must be gathered within bounds before another bird is shot at, and within three minutes' time, by a dog or shooter, or person appointed by the shooter for that purpose. No extraneous means shall be used, and no other person shall be allowed to assist in gathering. If the

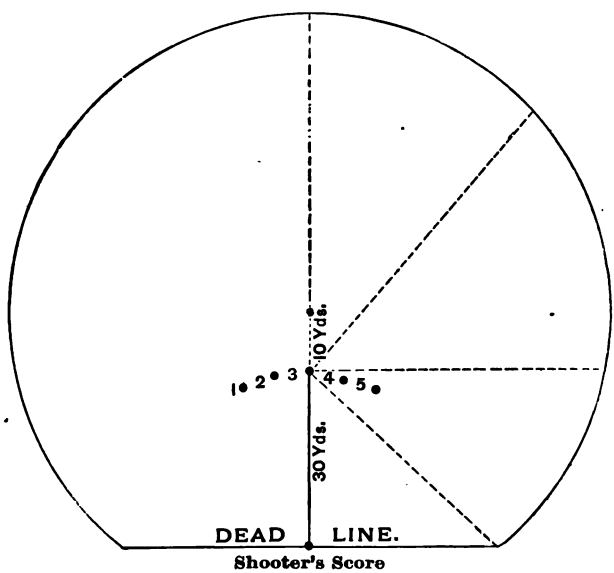


Diagram D. (See Rules 5 and 7, "Live Bird Shooting.")

NOTE.—This should give, from center trap to boundary, to straight-away bird, sixty yards; to right quarter, fifty-eight yards; to bird at right angles, forty-eight yards; to junction of circle and dead line, forty-two yards.

gatherer can not locate the bird, he may appeal to the referee to locate it for him. All birds challenged must show flesh shot-marks, to be scored "Dead birds."

RULE 10 — *Birds Killed on the Ground.*— A bird killed on the ground with the first barrel is "No bird." But it may be killed on the ground with the second barrel if the first is fired while the bird is on the wing. If a bird is shot at on the ground with the first barrel, and the shooter uses the second barrel, but fails to kill, it is "Lost bird." But if the bird is killed, it shall be "No bird."

RULE 11 — *Mutilating Birds.*— No mutilation of birds will be allowed, and if it is proved to the referee that any contestant has wilfully mutilated a bird, or is a party thereto, the referee shall declare all his rights in the match forfeited.

RULE 12 — *Out of Bounds.*—A bird once out of bounds must be scored a "Lost bird."

RULE 13 — *Birds shot at by Another Person.*— If a bird be shot at by any person other than the shooter at the score, the referee shall decide whether it shall be scored, or another bird allowed.

RULE 14 — *Position of Gun.*—Any the shooter may adopt.

RULE 15 — *Loads.*— Charges of powder unlimited. Charge of shot not to exceed one and one-quarter ounces American Association, or Dixon's measure, struck. Any shooter using a larger quantity of shot shall forfeit his entrance money and rights in the match.

RULE 16 — *Caliber and Weight of Gun.*— No gun of larger caliber than a ten-bore shall be used, and the weight of all guns shall be unlimited.

RULE 17 — *Loading Guns.*— No gun shall be loaded except at the score. Cartridges must be removed from the gun before leaving the score.

RULE 18 — *Gun not Cocked.*— If a gun is not cocked, or the safety not properly adjusted, and the bird escapes, it shall be scored a "Lost bird."

RULE 19 — *Miss-fire with the First Barrel.*— If the shooter's gun miss-fire with the first barrel, and he uses the second barrel and misses, the bird must be scored "Lost bird." But if killed with the second barrel, on the wing, it shall be scored "Dead bird."

RULE 20 — *Miss-fire with the Second Barrel.*— If a miss-fire occur with the second barrel, the shooter shall have another bird, using a full charge of powder only in the the first barrel. He must, however, put the gun to his shoulder and discharge the blank cartridge in the direction of the bird, and the bird must be on the wing when the first barrel is discharged.

RULE 21 — *Shooter at the Score.*— In all contests the shooter must be at the score within three minutes after his name is called to shoot, or he forfeits his rights in the match.

RULE 22 — *Leaving the Score.*—A shooter having fired his first barrel and left the score, can not return to fire his second barrel.

RULE 23 — *Balk.*— If a contestant is balked or interfered with, or there is other similar reason why it should be done, the referee may allow another bird.

RULE 24 — *Announcing the Score.*— The referee shall announce the result of each shot distinctly and it shall be called back by the scorer, and at the close of each shooter's score the result must be announced, and if

claimed to be wrong, the error, if any, must be corrected at once.

RULE 25 — *Tie Shooting.*— All ties shall be shot off at the original distance, and as soon after the match as practicable, at the following number of birds:

In matches of ten birds or less, three birds.

In matches of eleven to twenty-five birds, inclusive, five birds.

In matches of twenty-six to fifty birds, inclusive, ten birds.

In matches of fifty-one to 100 birds, inclusive, twenty-five birds.

If in a series of matches the result prove a tie, such tie shall be shot off at the original number of birds.

RULE 26— *Class-shooting.*— All shooting shall be class-shooting unless otherwise stated.

RULE 27 — *Endangering Person or Property.*— If a bird shall fly so that to shoot at it would endanger any person or property, it shall not be shot at, and the referee shall allow another bird.

RULE 28 — *Forbidden Shooting.*— No shooting shall be permitted within the enclosure other than at the score, and in case there is no enclosure, no shooting within 200 yards of the score, except by those at the score, without the consent of the management.

DOUBLE BIRDS.

RULE 1 — The rules for single-bird shooting shall govern double-bird contests, when not conflicting with the following:

RULE 2 — *Double Rises.*— The double rises shall be from two traps of any kind, ten yards apart, pulled simultaneously. The rise shall be:

Twenty-six yards for ten-bore guns.

Twenty-four yards for twelve-bore guns.

Twenty-two yards for fourteen and sixteen bore guns.

Twenty-one yards for twenty-bore guns.

RULE 3 — *Allowing Another Pair.*— Both birds should be on the wing when shot at. Should only one bird fly, the shooter shall have another pair of birds if he does not shoot, or if he does shoot and kills the bird on the wing. But if he shoots and misses, the bird shall be scored lost, and in such event he shall shoot at another pair of birds, with a full charge of powder only in one barrel. The referee shall load the gun, not allowing the shooter to know which barrel contains the full charge, and which contains the powder charge only.

RULE 4 — *Miss-fire with the First Barrel.*— If the shooter's gun miss-fire with the first barrel, he will be entitled to another pair of birds if he does not shoot his second barrel. But if he fires his second barrel, the result must be scored, and the shooter shall shoot at another pair of birds, with a full charge of powder only in one barrel, as provided for in Rule 3.

RULE 5 — *Miss-fire with the Second Barrel.*— If the shooter's gun miss-fire with the second barrel, the result of the first barrel must be scored, and the shooter shall shoot at another pair of birds with a full charge of powder only in one barrel, as provided for in Rule 3.

RULE 6 — *Lost Bird.*— If a shooter fire both barrels at one bird intentionally, it shall be scored "Lost birds."

But if the second barrel be discharged accidentally, it shall be "No birds."

RULE 7 — *No Bird.*— If both birds are killed with one barrel, it shall be declared "No birds," and the shooter shall shoot at another pair of birds.

RULE 8 — *Ties.*— All ties must be decided in shooting off as follows:

In matches of five pairs or less, at two pairs.

In matches of six to ten pairs, inclusive, at three pairs.

In matches of eleven to twenty pairs, inclusive, at six pairs.

In matches of twenty-one to fifty pairs, inclusive, at ten pairs.

HURLINGHAM CLUB RULES.

REVISED JUNE, 1886.

1. The referee's decision shall be final.

2. The gun must not be held to the shoulder until the shooter has called "Pull." The butt must be clear below the armpit, otherwise the referee shall declare "No bird."

3. A miss-fire is no shot, under any circumstances.

4. If the shooter's gun miss-fire the first barrel and he use the second and miss, the bird is to be scored lost.

5. If the miss-fire occurs with the second barrel, the shooter having failed to kill with his first, he may claim another bird; but he must fire off the first barrel with a cap on, and a full charge of powder, before firing the second.

6. The shooter's feet shall be behind the shooting mark until after his gun is discharged. If, in the opinion

of the referee, the shooter is balked by any antagonist or looker-on, or by the trapper, whether by accident or otherwise, he may be allowed another bird.

7. The shooter, when he is at his mark ready to shoot, shall give the caution, "Are you ready?" to the puller, and then call "Pull." Should the trap be pulled without the word being given, the shooter may take the bird or not; but if he fires, the bird must be deemed to be taken.

8. If, on the trap being pulled, the bird does not rise, it is at the option of the shooter to take it or not; if not, he must declare it by saying "No bird"; but should he fire after declaring, it is not to be scored for or against him.

9. Each bird must be recovered within the boundary, if required by any party interested, or it must be scored lost.

10. If a bird that has been shot at perches or settles on the top of the fence, or on any part of the buildings higher than the fence, it is to be scored "Lost bird."

11. If a bird once out of the ground should return and fall dead within the boundary, it must be scored a lost bird.

12. If the shooter advances to the mark and orders the trap to be pulled, and does not shoot at the bird, or his gun is not properly loaded, or does not go off, owing to his own negligence, that bird is to be scored lost.

13. A bird shot on the ground with the first barrel is "No bird," but it may be shot on the ground with the second barrel, if it has been fired at with the first barrel while on the wing; but if the shooter misses with the

first and discharges the second barrel, it is to be accounted a "Lost bird," in case of not falling within bounds.

14. All birds must be gathered by the dog or trapper, and no member shall have the right to gather his own bird, or to touch it with his hand or gun.

15. In single shooting, if more than one bird is liberated, the shooter may call "No bird," and claim another shot; but if he shoots, he must abide by the consequences.

16. The shooter must not leave the shooting-mark under any pretense to follow up any bird that will not rise, nor may he return to his mark, after he has once quitted it, to fire his second barrel.

17. Any shooter found to have in his gun more shot than is allowed, is to be at once disqualified. Any loader supplying, in sweepstakes or matches, cartridges loaded in excess of the authorized charge, will be dismissed from the club-grounds.

18. None but members can shoot, except on the occasion of private matches.

19. No wire cartridges or concentrators allowed, or other substance, to be mixed with the shot.

20. In all handicaps, sweepstakes, or matches, the standard bore of the gun is No. 12. Members shooting with less to go in at the rate of half a yard for every bore less than twelve down to sixteen bore. Eleven-bore guns to stand back half a yard from the handicap distance, and no guns over eleven-bore allowed.

21. The winner of a sweepstakes of the value of ten sovereigns, including his own stake, goes back two yards; under that sum, one yard, provided there be over five

shooters. Members saving or dividing in an advertised event will be handicapped accordingly.

22. Should any member kill a bird at a distance nearer than that at which he is handicapped, it shall be scored "No bird," but should he miss, a "Lost bird."

23. One and one-fourth ounces of shot and 4 drams of black powder, or its equivalent in any other description of gunpowder, is the maximum charge. Size of shot restricted to Nos. 5, 6, 7, and 8.

24. All muzzle-loaders shall be loaded with shot from the club bowls.

25. If any bird escapes through any opening in the paling, it shall be "No bird."

THE HURLINGHAM CLUB BOUNDARY.

The Hurlingham Club boundary is about ninety yards in a straight line from the center trap.

THE MONACO BOUNDARY.

The Monaco boundary (a wire fence about forty inches high) is 17 meters, or 18 yards, 21¼ inches in a straight line from the center trap.

GUN CLUB RULES.

REVISED APRIL, 1891.

1. A miss-fire is no shot under any circumstances. If the shooter miss-fire with the first barrel, and use the second and miss, the bird is to be scored lost. If he miss-fire with the second barrel, he shall have another shot, but with the ordinary charge of powder and no shot in the first barrel.

2. If the gun be locked, or not cocked, or not loaded and the bird flies away, it is a "Lost bird;" if the stock or lock should break in the act of firing, it is "No bird."

3. If the trap is pulled without notice from the shooter, he has the option to take the bird or not.

4. The puller shall not pull the trap unil the trapper and the dog are back in their places, even should the shooter call "Pull."

5. If, on the trap being pulled, the bird does not rise, the shooter to take it or not, at his option; but if not, he must declare it by saying "No bird," before it is on the wing. If, however, the bird rises and settles before the shooter fires, it shall be at his option to refuse it or not.

6. *Single Shooting.*— If more than one bird be liberated, it is "No bird."

7. In shooting at a bird, should both barrels go off at once and the bird be killed, it is "No bird;" if the bird escapes, it is a "Lost bird."

8. *Double Shooting.* — If more than two traps be pulled, they are "No birds;" should both birds not rise simultaneously on the opening of the traps, they are "No birds."

9. A bird to be scored "good" must be gathered by the dog or man without the aid of a ladder or any other instrument, and all birds not gathered in the ground, or gathered inside the pavilion inclosure, having flown over the railings, to be scored "lost."

10. If a bird which has been shot perches or settles on the top of the fence, or on any of the buildings in the ground higher than the fence, it is to be scored a "Lost bird."

11. If a bird once out of the ground return and fall dead within the boundary, it must be scored a "Lost bird."

12. If the first barrel be fired while the bird is on the ground, should the bird be killed by either barrel it is "No bird;" if missed, it is "lost." It may be shot on the ground with the second barrel if it has been fired at with the first barrel while on the wing.

13. The shooter is bound at once to gather his bird, or depute some person so to do when called upon; but in so doing he must not be assisted by any other person, or use any description of implement. Should the shooter be in any way baffled by his opponent, or by any other person, or dog, he can claim another bird with the sanction of the referee.

14. The shooter having once left the mark after shooting at the bird, can not shoot at it again under any circumstances.

15. In matches, or in sweepstakes, any shooter found to have in his gun any more shot or powder than is allowed, to be at once disqualified.

16. Any shooter is compelled to unload his gun on being challenged; but if the charge is found not to exceed the allowance, the challenger shall pay £1 to the shooter, which must be paid before he (the challenger) shoots again.

17. None but members can shoot, except on the occasion of the open handicaps, or by special permission of the committee; and no person shall be allowed to compete in either sweepstakes or matches, except he be a member of the club, or qualified to become a member.

18. Breech-loaders not to be loaded until the shooter is at the mark and the trapper has returned to his place. On leaving the mark, should a cartridge not have been discharged, it is to be removed before the shooter turns his face from the traps.

19. No wire cartridges allowed, nor is any bone-dust or other substance to be mixed with the shot.

20. Should any shooter shoot at a distance nearer than his proper distance, the bird, if killed, is "No bird"; if missed, a "Lost bird"; or, should he, by direction of the referee or scorer, shoot at any distance exceeding his proper handicap, the bird, if missed, shall be "No bird," and the shooter shall be allowed another, which, if killed, shall be scored. All bets made upon any shot under the above-named circumstances shall be decided by the result of that particular shot, although the shooter may be directed to shoot again.

21. One and one-fourth ounces of shot and four drams of black powder, or its equivalent in any other description of gunpowder, is the maximum charge. In advertised handicaps the shooter is allowed to go in half a yard for every one-eighth of an ounce of shot less than the maximum.

22. In shooting for the principal advertised events members can enter up to the end of the second round, unless it shall be within the knowledge of the referee that any member proposing to enter has been on the ground during the first round, in which case he should not be permitted to shoot after the commencement of the second round. For all other sweepstakes entries must be made before the end of the first round, special sweepstakes excepted. No prize given by the club shall be

shot for unless eight members compete in the summer, or six in the winter seasons.

23. The sweepstakes preceding the chief event of the day shall be divided, by those shooters who may be in at the end of the round at 3 o'clock, in equal proportions.

24. Shooters who miss in the first round of the advertised events, may take a second chance. The members' challenge, Tuesday and Thursday, cups excepted.

25. *Handicapping.*—The handicap distances range from twenty-two yards to thirty-two yards. Distance of new members, twenty-seven yards. Even distance sweepstakes shall not count for penalties in the handicap. No shooter shall be liable to a penalty of more than three yards in one day. The handicap shall be made up the day after each shoot.

26. In handicap sweepstakes, winners of £5 go back one yard; £10 and upward, two yards; £20 and over, three yards for the day. Members winning £50 to go back one yard, and members losing £50 to go in one yard in the handicap book.

27. In *handicaps* the amount of division is to be declared to the referee, and the members dividing shall be penalized to the amount they receive. This rule not to apply to the saving of stakes.

28. In large sweepstakes, if the money be over £50 there shall be two prizes; if over £100, three prizes; and over £200, four prizes.

29 No shooting at birds thrown up, or other irregular practice with guns, shall be permitted on the ground at any time.

30. Should two members agree to save stakes, and one of these divide with a third person, the member so

dividing shall pay the full stake to the member who does not win or divide.

31. No member to be allowed to shoot in any sweepstakes or handicap until he shall have paid the amount of his entry to the scorer, and should he shoot without having paid his stake before firing his first shot he will be excluded from taking further part in such competition.

32. The deductions from all sweepstakes of the value of £8 and upward in the summer season, and £5 and upward in the winter season, is 10 per cent, to go to the funds of the club.

33. No guns above eleven-bore allowed.

34. Members shooting under an assumed name must have the same registered in a book by the secretary. The charge for registration is £1 per annum.

The following fines will be strictly enforced:

1. No bet shall be made by any member who has been called up to shoot after passing the enclosure gate, even should he have been standing there previous to his name being called. Any member infringing this rule will be fined £5, which shall be paid before he shoots again.

2. Pointing a gun at anyone, or firing a loaded gun without permission, except at the mark, £5.

3. Any person firing at a bird after it has passed the safety flags will be fined £5, and the bird shall be scored "lost."

THE GUN CLUB BOUNDARY.

The Gun Club (Notting Hill) boundary is sixty-five yards in a straight line from the center trap.

The Big Game of North America

Its Habits, Habitat, Haunts, and Characteristics. How, When, and Where to Hunt It.

A BOOK FOR THE SPORTSMAN AND THE NATURALIST

EDITED BY

G. O. SHIELDS ("COQUINA"),

Author of "CRUISINGS IN THE CASCADES," "RUSTLINGS IN THE ROCKIES," "HUNTING IN THE GREAT WEST," "THE BATTLE OF THE BIG HOLE," "CAMPING AND CAMP OUTFITS," etc.

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